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THE TEXTILE MANUFACTURING JOURNAL

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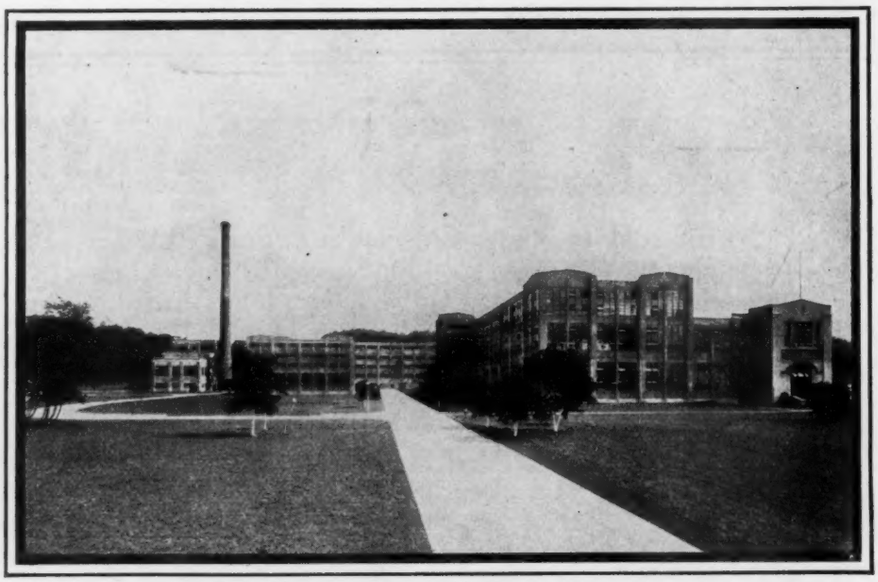

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COTTON

Vol. 94 March, 1930 No. 5

NOT *So* DIFFERENT

Self-Expression is Just as Prevalent in the Mill Village as it is in Any Other Community

By Marjorie A. Potwin, Ph. D.

MISS POTWIN presents here a clear and readable discussion of a phase of textile industrial life which is vital.

It is undoubtedly true that, regardless of the origin of the thought, the average layman has an incorrect picture of life in the mill village.

This article, as was the case with the author's two recent contributions on related subjects, has back of it an extended, intimate experience with mill village life; and in her inimitable style, Miss Potwin has provided a sincerely written discussion that is certainly wholesome food for thought.

EDITOR COTTON.

AS THE SMART GREEN CARS of the Crescent Limited sped across the Carolinas, the lady in lower six was informing everyone within ear-shot about life in southern mill villages, one or more of which was almost constantly in sight.

"It just hurts me to think of all those good American people not having any self-expression." The man in lower five gave a look to indicate that some folks have too much, but it was lost on the lady now replying to her seat-mate in the following manner:

"Oh, no, I've never really been in a mill village or anything like that, but I do keep up my reading. Don't you remember how Tannenbaum says that the mill people 'can't vote'? Just imagine, not voting, nor having their own social life, and being so different from other people, and I simply can't get over their *not having any self-expression!*"

Quite dismayed, the lady sank into silence and no one cared to break it with the suggestion that wherever there is life there must be self-expression. Life sustains itself by activity, and all activity is self-expression. The flower expresses itself in color, the bird in song, the tree in shape. Man's self-expression is manifold because he is a complex being. He is social, and he likes to express himself in company with his fellow men.

And so wherever living men habitually come together, a field for social action inevitably creates itself. The urge for self-expression is irrepressible. "Let's do so and so," say the individuals who have come together, "Can't we start a club?", "Let's go, gang," and almost before they know it they start collective self-expression for fun, or gain, or self-improvement, according to their interests.

Dr. POTWIN
Photo, by Bachrach.

And because the mainspring of all activity is interest, people will undertake and keep on doing only those things in which they feel genuinely interested. Upon his variety of interests man establishes a host of contacts. Perhaps between him and another individual music is the mutual interest, or base-ball, or religion, and upon such contacts people the world over form their social groups, and shift and re-adjust them with every change of interest to which the normal man is heir.

But more permanent than these fluctuating cultural interests, some one big underlying interest binds together the individuals who habitually associate. Their weal or woe is bound up in the success or failure of their common interest. It is shared by all, and it generates that community of interest, which operating in a definite locality is, in fact, "a community", as the word is now accepted.

Universally a real community is founded upon one outstanding economic interest. Detroit, its automobiles; Oneida, its silver; Cape Cod, its fishing villages; Ohio, its farming hamlets. And so we see the cotton mill villages of the South as nothing unusual or startling. Their economic structure is closely akin to that of other places; nor does their social structure vary in its fundamental aspects.

Another universal characteristic of a community is that as soon as its economic interest dies, or its industrial vitality is killed, a definite and immediate retardation and decadence sets in.

Until then, or as long as life exists, there is always self-expression.

The self-expression of a community, like that of an individual, is, of course, limited by the inborn properties bound up within it. The daisy cannot be an orchid, nor the mule the winner of a Derby. The self-expression of a community depends upon the capacity of the majority of the members of it, and their ability, in turn, is inherent in their make-up. Interest may be stimulated and capacity awakened, but nature has set a definite limit to what can be accomplished. Nor can man fathom the mystery by which, in the same environment, one individual becomes artist, the other, artisan; one becomes a saint, the other sinner; one, the teacher, the other, the taught.

But even as this mystery puzzles, it is also the guardian of every man's individuality, or self-expression. Perhaps, indeed, capacity and interest are God-given, so that, even while we may not make of ourselves all that we wish to be, yet no other man can make of us anything that we do not want to be. If there is not a poem within our nature, no power on earth can make us write one. If, on the other hand, little tunes whisper their vagaries to us we are pretty sure to find an instrument on which to give expression to them. It is like that with individuals, and with communities.

The cotton mill villages of the South are genuine communities. The people in them are bound together by their interest in making cotton cloth, a wholesome and honest occupation. A cotton mill village has definite geographic boundaries, but no Chinese wall shuts its people in and others out. As in every progressive community, there is much communication between the people in the mill villages and the rest of the world; visits, travel, reading, the radio, the movies, and in every way acting upon the world, and being acted upon by it, like people everywhere.

How Tannenbaum ever conceived the idea that the mill people of the South are allowing themselves to be buried alive[1] is almost beyond comprehension. Even if there was anyone who wanted to dig their graves, a first hand knowledge of the liveliness and the up-and-comingness of the cotton mill people indicates that, unless the operative himself was just craving to be buried alive, by the time the funeral procession got back to the office the buried-alive employee would already be in front of the company's store, regaling his audience with the good joke he had played on the "super", and holding his sides with laughter over the way the boss men had had to grunt when they lifted his coffin.

But it is the politicians of the state and county who laugh when they read that the mill people "have no political life, they do not vote."[2] Those who swallow this must also kid themselves into thinking that it was only to pass the time of day that within the twenty-four hours preceding the election of 1926 the candidate for Governor of South Carolina made addresses in thirty mill villages in Spartanburg County, in addition to previous speeches in them. It is said that "Cole Blease knew more factory operatives than any man in South Carolina. He hunted them out and cultivated their acquaintance."[3] In one city in the Piedmont with a population of thirty thousand, the ward that includes a cotton mill, employing fifteen hundred operatives, is recognized as the controlling ward in every city election, and in cities containing more mills the situation is doubtless even more accentuated.

Concert Band of Watts Mill, Comprised of Employees.

[1] Frank Tannenbaum—"The South Buries Its Anglo-Saxons."

[2] Frank Tannenbaum—"Darker Phases of the South."

[3] Yates Snowden—"History of South Carolina."

However, most of the southern mills are in unincorporated rural districts, and to understand the participation which these villages take in politics it is only necessary to remember that in the South the county is the dominant political unit, and that the votes of the mill people are as important as the votes of tax-paying property holders, and there is no way in which the owners of the mill, or anyone else, could, even if they would, stand between the county officials and their constituency. As for any control of the vote—that is a joke since the introduction of the secret ballot.

The cotton mill people can vote if they want to. They have the invitation and the full opportunity. Incidentally, along with many people throughout the land who do not vote, the mill people have the right to decline to use the ballot. Would Tannenbaum have them *driven* to the polls, and *forced* to vote?

HERE are four cotton mill girls, in cotton garments. The frocks are made of cotton, and were exhibited in Atlanta recently by Miss Cleveland, of the Cotton Textile Institute. An equally interesting fact--and more significant in connection with the accompanying article, is that the four girls wearing them are operatives in the Exposition Cotton Mills. For the Exhibition, Miss Cleveland needed four models, and these young ladies consented to perform the duty. The photograph is submitted as evidence in connection with Miss Potwin's discussion.

As in politics, the social self-expression of a mill village is what the people in the community wish it to be. If they want good times together they will have them. It seemed a little foolish when a professor making a survey of the South for one of the large foundations not long ago, was surprised to find that the young people in the mill villages entertain their friends and give parties to them in their homes.

The home life of the people has not been given justice in any study of the cotton mill villages, but the great majority of the people at the mills convert the cottages into homes, just like the inhabitants of an apartment house give touches of distinguishing individuality to their three or four rooms. And the apartments, by the way, are just as much alike as mill houses ever are identical.

But in apartment, or in cottage, it is the *spirit* of the home that counts. Like the spark of life, it is invisible, but very dear. It is sacred to the family, and not on exhibition to the casual observer. In the homes of the people at the mills their family life is fashioned as they wish it. It is chock full of all the relationships most dear to man; the laughter of little children, the tenderness of motherhood, the sweetness of devotion, the sympathy of near and dear ones, the cheer of good companionship. A great deal of the family life is happy-hearted. But above all else, it is complete self-expression.

If there are those who cannot appreciate this home life, such can rest assured that their own preference probably would not be that of the people at the mills. All life is pretty much a matter of individual liking, or "everyone to their own taste," said the old woman as she kissed the cow. And in tastes there is a great range of variation in every village; in dress, cleanliness, choice of recreation, expenditures and even more particularly in the selection of friends. Social distinctions are sharp and very definite. But that is so wherever human beings dwell together.

Group activities that center around the community building are also the people's own self-expression. If any community leader, paid or volunteer, does not pitch his interest in harmony with that of the people there is no activity but only indifference, and a firm if courteous, rejection. No persuasion can make a group bent on playing basket-ball take any active interest in a debating club, and it takes a long time to get a chicken-fighting, poker-loving community to really enjoy using a church donated to it, for not only of our friend the quadruped might it be written, "You can lead a horse to water, but you can't make him drink."

In all group activities initiative is instinctive, and inner urges will express themselves. Community activities throughout the cotton mills of the South are not somewhat alike because the owners of the mills have issued their decrees but they are fundamentally alike because people everywhere like to do about the same kind of things. In the country and in small towns people like to meet just as they do in the mill villages.

Not long ago a mill church entertained three hundred delegates to a district Sunday School conference. In the community building the ladies of the village, through their own committees, served them a hot dinner—ham, rice and gravy, macaroni, pickles, rolls, salad, home-made cakes, ice cream and coffee. The mill was not asked to contribute, or to help in any way, as donations from the people of the village were generously ample. What are such activities but the highest kind of self-expression?

Some communities wish more social self-expression than others, but wherever there is the will to have them the facilities are usually forthcoming. If the men of the village decide to form a chapter of the Woodmen of the World they are likely to ask the execu-

This is a group picture of the committee in charge of a picnic luncheon, given to a textile mill band convention by a Carolina mill. "Every home in the village, save one, contributed to the luncheon." The ladies in the photograph, besides Miss Potwin, who is fourth from the left, are residents of the village of the mill.

tives of the mill for a place to meet, just as the citizens of a small city wishing a library might ask the Carnegie Fund for it, or the residents of a county look to the Duke Endowment for hospital or educational aid; about the only difference being that the citizens who secured the library would be praised for their ability as go-getters, and the donor lauded for his generosity, whereas the people in the mill village allow themselves to be called the patronized, and the mill presidents paternalistic!

In neither case need the enjoyment of the building be marred by the method of its origin, and in the mill villages the appreciation of those for whom it is given is sincere. Fraternal organizations, like other groups meeting there, know there is no cramping of their programs, and the only self-expression that is curbed is that of the kid who climbs up to peep into the window.

A Community Party.

Wherever men act together for a common end they crystalize their aims around a leader, usually chosen because in the conduct of his own affairs he has exhibited those qualities which lead the group to think that he can also handle theirs efficiently. That is why very naturally the people of some villages are willing to entrust their interests to the leadership of the mill executives, but any leader remains the leader and the followers the followers, only so long as the policy of the leader is acceptable to the majority, and only so long as he performs the tasks assigned him. Universally, the members of a group expect their leader to discipline the non-conforming individuals.

Communities also feel that desire for cohesion, and demand a toeing of the mark. Which is to say that the inhabitants of a mill village themselves pretty much determine who shall be a member of it. "Birds of a feather flock together," and it is not only the sparrows who know how to drive out the birds who are not wanted. By this simple process of natural selection communities are self-determining. Some become high class, and others "rough", depending only, and entirely, upon the number of men in them of sterling character, vision, and the desire for law and order.

Human nature will express itself, and the most that the guardians of any group can do about it is to make men of high ideals feel that they are wanted in it. The rest will take care of itself, for, like plants growing in the dark, a living, developing community gropes its way toward the light. The others eventually bring about their own destruction. A community happy in its self-expression does not worry about imaginary ills. It naturally achieves a collective common-sense and a balanced kind of right mindedness.

The social laws which operate in all communities work themselves out also in cotton mill villages. The South has not done its mill communities justice by letting them be thought of as something different and apart. Community is community the world over—a binding common interest drawing people together for a common undertaking, around which individuals act and express themselves as long as man is man. The cotton mill people of the South act like people everywhere. They are social, they express themselves together. It is high time to quit pretending that mill communities are different, or that the people in them live apart. Their self-expression is a very real and precious thing. No man could deny it, or repress it, even if he would.

MAINTAINING the Mill's Electrical Equipment

By Homer Carter, Superintendent,
Pepperell Mfg. Co., Opelika, Ala.

THIS IS another article presented to direct attention more closely to some of the important equipment allied with and essential to economical and efficient operation of your productive equipment. Truly, as Mr. Carter says, it would be well for every operating executive to give the power end of the mill more study and attention. This article, based upon experience, will, we hope, furnish you with some new ideas as to inspecting and maintaining your mill's power and transmission equipment.—THE EDITOR.

VERY FEW OPERATING EXECUTIVES know as much about the power end of the mill as they do regarding the manufacturing, and consequently, one may find mills in which the productive machinery is in good shape, but where the power and transmission equipment is not in a comparable condition. It is an easy matter for the idea to prevail that these machines must be kept running continuously during the operating hours —and when a prime mover breaks down and stops off part of production, the easiest and quickest way to make the repairs in order to get the machines started up again is generally used. In a few instances, these temporary jobs are followed up and made permanent, but in most cases they remain in a temporary state, and as a result, trouble develops again in a short time.

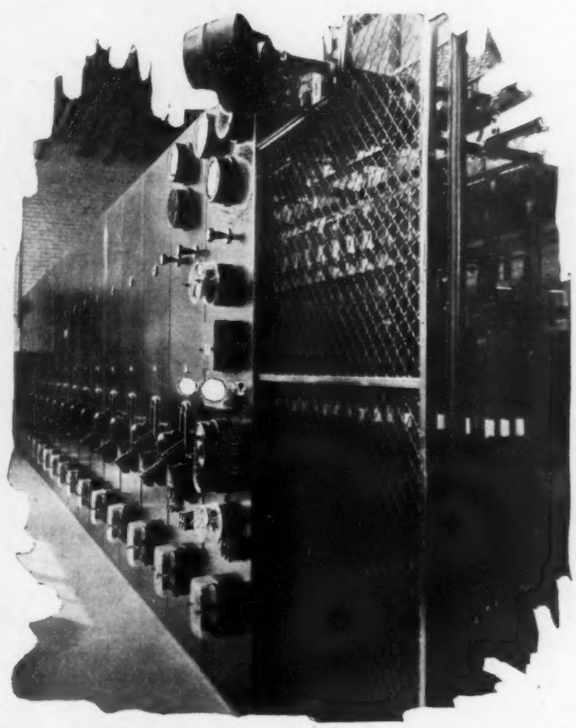
It would be well for every mill superintendent to give this end of the job the study and attention which it requires. If he fails to do this, regardless of how well the other parts of the plant are operating, he will lose a goodly sum each year which might have been on the profit side of the ledger. It is true that the power and transmission equipment may be neglected for a number of years and result in only an apparently small loss to the mill. But, over a period of time, the loss will be large due to the equipment's rapid depreciation after the first few years.

Proper systems for the maintenance of the power and transmission equipment in a mill are very valuable, and the correct use of such methods will result in few productive machines being stopped at any time for power. Most mills today have up-to-date equipment, and, with the proper attention, it should give very little trouble.

This article is written in the hope of directing the attention of the readers of COTTON to this important phase of a cotton manufacturing plant. It is hoped that as a result we may have more discussion along these lines, and that closer attention will be paid to the power and transmission equipment.

By starting at the transformers and following the "juice" through to the motors which drive the various machines in the mill, we will take in everything connected with the power for which a mill pays.

First, it is a good idea to check the capacity of the main transformers, whether they belong to the power company or to the mill, and compare it with the load on the mill. It may be found that smaller transformers will carry the load, or that where three in a bank are being used, two will do as well. These may be used by changing the connection. There is an energy loss in these transformers which the mill has to pay for, and this loss increases with the number and size of transformers in service. For this reason it is best not to have too much surplus capacity. (At least once a year, a bottle of oil should be drawn from the transformers and given the breakdown test, for moisture, sludge, etc. Most of the electrical equipment people maintain regular service of this kind, including the furnishing of bottles for this purpose; and some of the power companies likewise operate a service of this kind for their customers.)

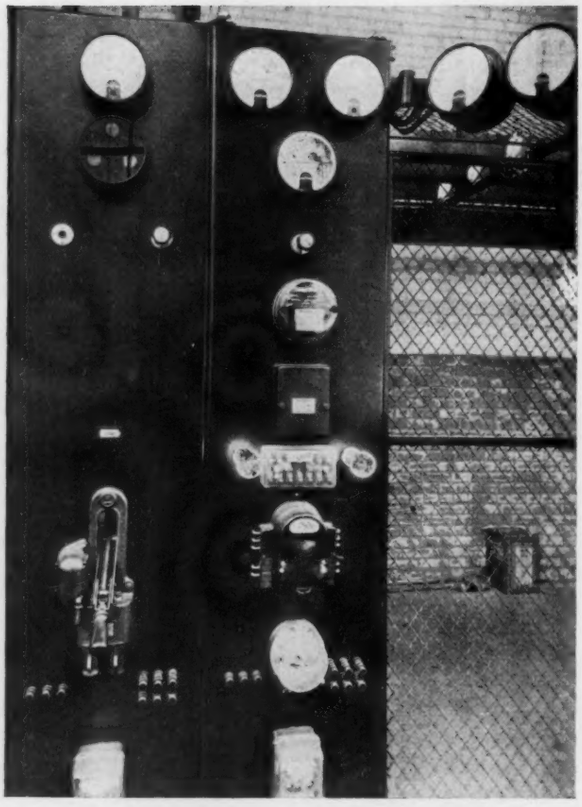


All-steel switchboard at mill of Bemis Bros. Bag Co., Talladega, Ala. "The first all-steel board to be installed in a textile mill."

From the transformers, the electrical energy

passes to the buss bars in the switch room, where it splits up and travels out through a number of circuits to the various departments of the mill. It is very important that a watthour meter be installed to check the total power consumed, and when possible it is well to have ammeters in each circuit leading from the switchboard. These instruments should be read at least once a day when the load is on.

A recording volt meter and frequency meter here are very informative when properly used. These two instruments will indicate the fluctuations in the voltage and frequency of the electrical energy. If there is much variation in the voltage and frequency, trouble is caused in the mill by varying speeds and inefficient illumination. A variation of this nature is usually easily remedied, however, for when the power company is notified they can minimize it to a large extent. The effect of varying voltage and frequency as seen in the productive machines, will be discussed in subsequent paragraphs.



Detail of Instruments on Bemis Board.

The left panel shown carries, reading from top to bottom, a feeder wattmeter; ground detector; wattmeter and ground detector switches; oil circuit breaker handle; testing terminals, and feeder watthour meter. On the right panel, top to bottom, are incoming line wattmeter; incoming line ammeter; power factor meter; power company meter test block, watthour meter, and demand meter; and customer's watthour meter. At the right, off of the board, are a voltmeter and a frequency meter.

After leaving the switch room, we trace the various feeders into the mill and check their rated load and compare this with their capacity. It is even better to measure the actual electrical energy passing through each feeder by means of instruments. By having the instruments on the switch board as referred to, the actual load on the main feeders can be easily checked. To get this information for the branch feeders, it is necessary to use a portable ammeter. Machines are moved occasionally, and it is usually convenient to drive from a line supplied by a different feeder, thereby increasing the load on one and decreasing it on the other. Unless care is used, some feeders will be overloaded in this manner and this will mean inefficient transmission of the power to the prime movers.

Fuses should be used for protecting each branch circuit, and care taken to see that the proper size fuses are used in each instance; otherwise, they will not serve the purpose for which they were intended—that is, affording protection to the switches and motors being fed.

Next we come to the switches and motors. The electrical energy passing into each motor should be measured to make certain that none is overloaded. This may be done with a portable ammeter, but preferably with a recording wattmeter. It is also a good idea to check the voltage across the leads to each motor. This will indicate whether or not the feeders are of a sufficient size. This procedure should not be necessary more than once every few years, unless some changes are made which will affect the load on the motors.

A set program for inspecting motors should be followed. It is a good plan to drain the bearings once every two years and wash them out before fresh oil is put in. At the same time the air gaps should be gauged to determine the wear on the bearings. If there is indication that the bearings are worn even to a small extent, they should be repaired. When a motor bearing is worn to any appreciable extent, it will allow the rotor to drag. To expedite repairs, extra bearings may be carried for each size motor in the plant. Motors will heat up due to overloading or dragging rotors. When this happens and the motor has not been damaged to such an extent that it is necessary to re-wire the stator, a good insulating varnish should be used to paint the stator winding before the motor is put back into service. (Before painting, however, the winding should be submerged in gasoline, or washed off with gasoline, as it is not a good idea to paint a dirty winding.) This will prolong the life of the motor. *Motors should be kept as clean as possible.* A definite program may be followed for blowing them out. (It is harmful to use air above 30 pounds in blowing out the motors.) Those in one department may naturally get filled up with lint, etc., quicker than those in another, but by observation, one can soon determine how often each motor should be cleaned. The average motor should be cleaned about once every two weeks. This will help keep the power consumption as low as possible because a dirty motor has more friction loss than a clean motor. A good engine oil should be used to lubricate the motor bearings. The oiling should be done by a set schedule.

The switches and compensators used to start motors should be given as much care as the motor. The oil in the compensators and oil switches should be examined about once each year, and when found dirty or black with carbon should be replaced or filtered.

The contacts should be examined carefully, and if found burned to such an extent that they cannot be filed down smooth enough to make a good contact,

should be replaced with new parts. Spare contacts should be kept for these switches. All switches should be kept *clean*. This will minimize danger of fire being caused by ionized gases and arcing.

High voltage or a wide variation in the voltage will cause lamps to burn out excessively. Voltage regulators installed in the lighting circuits will prevent this to a large extent. Most lamps are guaranteed to burn at least 1,000 hours. The approximate number of hours each lamp burns may be checked by marking the date on the lamps as they are put in. Under ordinary conditions, lamps may burn out quickly due to voltage trouble or to faulty manufacturing.

Over a period of time every mill is able to determine the most practical speeds for its various machines. It is annoying and expensive to have these machine speeds vary to any extent. The variation in speeds may be minimized by having the electrical energy supplied to the motors at a fairly constant voltage and frequency.

Good efficiency in line shafting is maintained by keeping it lined and oiled properly. Most of the power required to drive line shafting and the machines in the mill is spent in overcoming frictional resistances such as air resistance and bearing friction. The work spent on the latter depends to a large extent on the nature of the bearings and the method of lubrication. The power absorbed by ball bearings is less than that required by ordinary bearings, but ordinary bearings which are kept in good condition will absorb much less power than those that are neglected. The surface speed of shafting also affects the frictional load in the bearings. It is generally concluded that a speed of about 200 feet per minute offers the least resistance. The friction loss will be increased at a speed below or above this. It is interesting to check the mill's idle friction load occasionally. That is, where group drives are used, have all shafting running with no load on them and take readings on meters at the switch board. This load will vary with the quality and quantity of lubrication, and the temperature of the rooms in which the transmission equipment is located.

Ordinary ring bearings used on overhead shafting are a source of grief to a great many mills because the oil runs out of the housings onto the shafting and drips into the stock in process. This may be minimized by keeping the bearings cleaned out, and by having the oiling done carefully. Drip pans under the hangers will help, but will not keep all of the oil out of the stock and off of the floors. A definite schedule should be followed in oiling. Some mills prefer to do their oiling often and use very little oil each time. This is surely the safest method and probably the cheapest, since a shut-down due to a burned out bearing is expensive, and the labor cost for oiling is comparatively cheap.

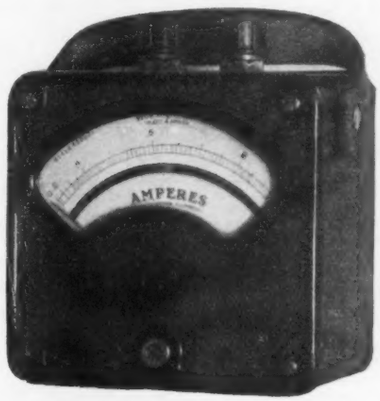
Oil for the Bearings.

There are very few mills which have not used several kinds of oil in their bearings over a period of years, and this has a tendency to cause a residue to form in the boxes. This may be cleaned out very easily when the boxes have clean-out plugs in them. When the bearings do not have the clean-out plugs, it is impracticable to consider taking down every bearing in the mill every few years to clean them out. However, it will help to have the shop men examine every bearing that is found throwing oil. This may be done when machines are idle, and when necessary the bearings may be taken down and cleaned out and also re-babbited. The best lubricant is the cheapest for use in bearings which are as inaccessible as are line shaft bearings.

Where group drives are used, instead of individual motor drives, the care of belts is an important item. The main drive belts should be cleaned regularly, and when it is found that they need lubrication, a good belt dressing should be used. In most plants it is necessary to clean belts at least every two weeks, but applications of dressing do not have to be made this often.

In conclusion, the writer might say that every mill will be profited by having a good man at the head of its mechanical department; that is, one who will study his job and do things to prevent accidents to the mechanical equipment, instead of waiting for an S. O. S. call from one of the departments. By doing this, he will not only afford the plant the maximum of insurance against break downs, but will save money for the company by prolonging the life of the equipment which he has in charge.

It would be interesting to have further discussions on matters relating to the power plant and electrical equipment.



A Portable Ammeter

"After leaving the switch room, we trace the various feeders into the mill and check their rated load and compare this with their capacity. It is even better to measure the actual electrical energy passing through each feeder by means of instruments. By having the instruments on the switchboard referred to, the actual load on the main feeders can be easily checked. To get this information for branch feeders, it is necessary to use a portable ammeter."

Several other interesting articles relating to this and similar phases of the mill have appeared recently in COTTON. Among these are: "Cutting the Fuel Bill by Stopping Steam Leaks", page 871, June, 1929, issue; "Maintenance of Motors in Textile Plants", page 1115, August, 1929, issue; "Lighting in Textile Mills", page 1239, September, 1929, issue; "Progress Made in Auxiliary Mill Equipment", page 1350, October, 1929, issue; etc., etc.

Clipped copies of these articles will be supplied to those desiring them upon application to The Editor.

Present Day Problems *of the* Textile Industry

By Bernard M, Cone, President
Proximity Mfg. Co.

WHEN MEN LIKE MR. CONE, and B. B. Gossett, come out to deal with topics of moment, what they say is worthy of careful study. The accompanying article is an abstract of an address dealing with "Some Present Day Problems of the Textile Industry," made by Mr. Cone before the School of Commerce at the University of North Carolina, at Chapel Hill, last month.

These quotations are presented as Mr. Cone's analysis and opinion. Space limitations prevent the reproduction of the entire address, complete copies of which may be secured upon application.

THE TROUBLE with the textile industry in the South for the past two years has not been too long hours but too short hours. The workingman's plight is not that he has been overworked but underworked. The mills have all been more or less on a short time run for fully two years. Our own record at Greensboro is as follows: in 1927, we ran 302 days. That was full time. In 1928, 243 days, in 1929, 266 days. I have not figures for the whole industry, but feel sure that our record is above the average.

That employment in cotton mills was decidedly on the wane in 1928 and 1929, as compared with 1927, is indicated by a bulletin gotten out by the Federal Bureau of Labor, dated December, 1929. Taking the monthly average employment of 1926 as 100, the Bureau finds the group index for employment in the cotton goods industry to have been as follows: 1926, 100; 1927, 105; 1928, 95.2; 1929, 95.5.

Now, while these figures refer to the decrease in number of employees rather than in hours worked, they do reflect a substantial curtailment in the cotton goods industry. So if we didn't know it as a fact, we could safely infer from these figures that there has also been curtailment in hours. For the manufacturer when forced to curtail will, as a rule, shorten his hours rather than reduce the number of his workers. He will try to keep his entire force together, so as to be ready to go ahead full speed the moment conditions improve.

According to Federal Bureau of Labor Bulletin Number 492, in 52 North Carolina mills covered by the studies, the actual hours averaged by the workers in the various departments were as follows: Card tenders, 40.7; drawing frame tenders, 38.5; slubber tenders, 41.9; speeder tenders, 42.2; spinners (male), 37; spinners (female), 38.5; doffers, 39.7 and so on.

These folks don't need anybody to help them get shorter hours. What they need is longer hours, more work, somebody to lift the industry out of the dumps and get them an opportunity to make a full time wage.

Mr. CONE
Photo, Blank-Stoller, Inc.

And there seems also to be some misunderstanding as to how many hours constitute full time in this State. You hear talk about 60 and 66 and even 72 hours a week. It is all rot, unadulterated rot. Most of the cotton mills in North Carolina, when they run on a full-time schedule, run just 55 hours a week, 10 hours on week days and five on Saturdays.

The new vogue introduced by industrial engineers of devising a program for securing greater production per machine unit or per labor unit is either efficiency or the stretch-out system, according to whether you are a cotton mill owner or a union organizer.

The "Efficiency" or the "Stretch-Out" System.

I speak of this stretch-out system because it was the starting point of one of the recent strikes and because the idea, the purpose and the working of this system has also been very much misunderstood.

So far, in cotton mills, it has generally been confined to the weave room, though it is gradually being extended to other departments.

The technique of the system is generally as follows:

First you replace inadequate, uneconomical machines with more modern and usually automatic and faster running equipment.

Second, you arrange the employee's work so that the skilled laborer may occupy his time more largely with skilled work, and the ordinary functions which can be performed by ordinary or unskilled labor, are delegated to ordinary, unskilled labor.

As the new machinery is more automatic, easier to run and requires less attention, you give the operative more machines to run.

Last and not least, you increase his pay. Yes, I am telling you, his pay is increased. And when you consider the overhead and additional expense of the change, the laborer gets a bigger share of the saving than the mill owner.

Within the past few years in our denim mills at Greensboro, we tried this system ourselves. We complete-

ly replaced the major part of our loom equipment, junking some 3,000 old looms and installing in their place 3,000 new, automatic looms. We rearranged the work by giving each weaver an average of 18 looms instead of 14 as previously. We took the unskilled task of cleaning, oiling, and sweeping around the loom from the weaver and furnished additional unskilled labor to do this work. By actual computation from our payroll, I find that this ignominious stretch-out system increased our full time weavers' earnings more than 20 per cent.

Now, I would like to read you a statement issued by the Union Buffalo Mills, Union, S. C., with reference to the efficiency or extended labor system which they put into effect in their mills. After giving figures showing a substantial increase, the statement proceeds:

"The management claims that one-half of the increased earnings yielded through the efficiency process has been given to the worker. The whole intent of the extended labor plan has been to pay more wages for more work, and thousands of dollars have been spent by the management in properly equipping the plant to enable the securing of increased production."

Mergers Will Not Help, Nor Will Surveys, Unions, or Legislative Action;

Says Mr. Cone, who adds that:

"Either production will have to come down to consumption, or consumption catch up with production. Some of the less efficient mills will have to go under, and the remainder put upon some sort of efficiency basis. There will have to be even greater curtailment in the future than in the past."

I know such a statement would be absolutely true in our own case and I believe it to be absolutely true in the case of the Union Buffalo Mills. Of course, the wage adjustment in changing the working system will vary in different plants, depending on the class of work, the change in machinery and various other factors.

I have talked at great length with industrial engineers who have worked out these problems in many southern mills, and based on what they tell me of the experience in these mills, I feel that I can safely assert that in the vast majority of cases where this system has been introduced, increased work has been accompanied by an adequate increase in pay. By coincidence, after I had prepared the above remarks, the president of the industrial engineers who had put in our efficiency system, paid us a visit. I asked him about this matter of increased wages, and he told me that his firm had put in efficiency systems for at least 40 Southern cotton mills, and that without exception in every one of these mills where work was increased, wages were increased.

There has been much talk of a survey, as though there were some magic in that word with power to help the situation. While personally I am not opposed to a survey if it will relieve anybody's feelings, frankly, I do not see what earthly good a survey could do. If it was a fair and honest survey made by people competent to make it, it would not disclose anything that is not already known. The Bureau of Labor already gathers and publishes statistics of wages and hours, which after all is the meat of the cocoanut.

And after the survey is made, what's going to be done with it? Use it as a basis for legislation! Carry it down to Raleigh and get them to pass this law and that law and every other law that well intentioned, but really impractical, folks can devise to meet the situation, but which will have no effect except to hamper business, reduce the number of jobs, throw more people out of employment and react disastrously not only on the prosperity of our State, but on the welfare of the very people it is intended to benefit.

Legislation will not help. If there were anything that could be done to help the situation, we manufacturers would do it without legislation.

The Merger Suggestion.

You can't legislate more money for our goods; you can't fix the price of our fabrics. You can't compel anybody to buy them. You can't tell him how many bales he's got to take and when and on what terms, and until you can do some of these things you can accomplish nothing by a survey or by any legislation based upon it.

Among the remedies that have been suggested for the present depression has been the merger idea. Let us see how this might apply in the case of cotton mills.

A strong group effects a merger. In order to increase their earnings, some of the less efficient plants are shut down, the production of various fabrics is allocated to the mills best equipped to make them, and output is limited to only such amount of cloth as the market will absorb. Presto! The merger is a success. The price goes up. The industry is on a paying basis again.

Then what happens? A hundred little independent mills, either previously shut down, or still struggling along in the general morass, immediately seek to take advantage of this new prosperity and start up their old machines, or put part of their looms and spindles on the fabric for which Merger & Co., has made a profitable market. Soon the supply again overtakes the demand and the industry is once again where it was at the outset.

This is not mere imagination. It is what has happened in a way time and again in the industry. Certain lines or styles of fabrics go bad. Others seem to be enjoying a vogue. Those manufacturers of the first, who can do so, immediately change over their machinery and begin to make the fabric that will sell. Result, a surplus, price recession and misery for all.

The Question of Unionization.

And so, even if a merger of cotton mills were effected, so long as there remained outside of the merger any substantial number of small units or any potential number of new units that could start up and intrude upon the favorable market created by the combination, you would always be faced with the danger of overproduction, and before long, everybody might be sinking again in the same old over-crowded boat.

The crux of the situation now facing the textile

industry in the South right now is the burning question of unionization of the mills. We manufacturers naturally do not take kindly to the idea of a union. We know for one thing that conditions in the textile industry in North Carolina are such that the laborer does not need the union. The union can do nothing for him. It cannot increase his wages, because there is nothing out of which to pay increased wages. For six years past the laborers have been getting nearly all that is left of the cotton mill income after paying the taxes. Certainly in proportion he has been getting more out of it than the manufacturer himself.

You can't pay increased wages if there is nothing to pay them with. In these times, if you are a cotton manufacturer, you are mighty lucky if you can squeeze enough out of it to pay the wages you have been paying.

One of the stock arguments put forth by the advocates of "collective bargaining" is the charge that manufacturers have unions. "The manufacturers combine," they say, "to fix the price of cloth, why shouldn't the laborers combine to fix the price of labor?"

Fine reasoning—no trouble with that reasoning, except that the major premise is false.

I have been president and treasurer of our company for more than 25 years and if during that time our price has been fixed by agreement, by gentlemen's agreement, or by pact, with Satan himself, I do not know about it.

Right here let me call your attention to something really weird in our national policy. If a group of workingmen get together, agree upon a wage and seek to enforce it by "peaceful picketing," that is fine, they are asserting their rights as freeborn citizens, they are within the law.

If a group of farmers get together, form co-operatives and seek to fix the price on cotton, again they are heroes. And our Government thinks so well of this that it lends them the money to do it.

But let two manufacturers get together and dare attempt to fix the price of cloth and we would be branded as criminals and sent to jail. It's against the law.

What about that for fair and just legislation and equal protection of the law?

But the big reason why the manufacturer doesn't like the idea of a union is because of the methods of the union. You may call it "collective bargaining," if you will, but that is a misnomer. It isn't collective bargaining at all. It's collective dictation or collective domineering where the formulation of terms is concerned and collective intimidation in putting them into effect.

My observation is that the unions in their demands for increased wages and reduced hours do not consider what is fair and just and reasonable as between manufacturer and employee in the light of economic conditions prevailing in the industry. On the contrary, their demands are usually arbitrary and unreasonable and when it comes time to enforce them, they resort to force, intimidation and law violation.

I realize that what I have said has largely been in the negative. It has been aimed at showing you the other side of the picture, and dispelling if possible some of the mists of prejudice and misinformation that surround the subject rather than at suggesting a remedy.

I am sorry, but I have no remedy to offer. If I did, it would already have been applied. Mergers will not help. Unions will not help. Surveys will not help. Legislation will not help.

The thing will have to work itself out like an aftermath of a stock market debacle or a tidal wave. Either production will have to come down to consumption or consumption catch up with production.

Some of the less efficient mills will have to go under and the remainder put upon some sort of efficiency basis. There will have to be even greater curtailment in the future than in the past. This means further unemployment and I should think that the thoughtful citizen would see that these are no times to try and force the issues of higher wages or lower hours upon an already over-burdened industry.

Co-Operation for Better Cotton

A PROGRAM for the improvement of the cotton crop in South Carolina, by the increased production of longer staple, which might be profitably adopted by all cotton growing states where such an effort is not being made, is suggested in a letter from Henry P. Kendall, president of Kendall Company, Inc., to Governor John G. Richards, of South Carolina.

The Kendall company operates several textile mills in South Carolina and other southern states, and for the past three years has been co-operating with cotton growers in the production of longer staple, the program including the furnishing of pedigreed seed, the improvement of ginning in order that poor ginning may not destroy staple, and mongrelize seed, and the paying of a premium for better staple.

With regard to the South Carolina situation, Mr. Kendall pointed out that the mills of that state consume between 1,200,000 and 1,300,000 bales of cotton annually; that the state has grown, during the past six years, an average of 835,000. At the same time, several hundred thousand bales are shipped out of the state every year, which means that the mills have not used a great deal of the cotton produced in the state because of its staple being below the standard required by the mills.

Furthermore, Mr. Kendall explained, 82½ per cent of the cotton ginned in the state last year was under ⅞-inch. He stated that in several localities the farmers have been encouraged to grow longer cotton from pedigreed seed, and that his mills have been paying a premium for this improved cotton. In addition to furnishing better seed, he said, a program of gin inspection and improvement, educational work on proper harvesting, poisoning, etc., has been applied.

MATCH—*to be* Exact

By Harold Schroeder

IN THIS ARTICLE Mr. Schroeder discusses the difference between a "commercial" match and an "exact" match—and what a difference! He goes interestingly into the reasons why the poor harassed and bedeviled dyer cannot secure that cherished result—an "exact match"—and points the way to at least one possible method of arriving at this condition.

Another of his extremely readable articles will appear in an early issue.—THE EDITOR.

SOMETIMES, ever so often, (usually resulting from two successive days without a re-dye) there may come to a dyer seated at his desk the feeling that now, at last, the elusive art of dyeing is on the point of being mastered. In other words, under the influence of a shining morning sun and the twittering of the little birds in the trees—if there are yet any little birds not sufficiently hardened by adversity to twitter in the vicinity of a dyehouse—the dyer may be deluding himself that now, because of his experienced competence, Old Man Trouble is passing him by.

It rarely fails. Such a feeling on the part of a dyer seems to be an open invitation for things to happen and how they do happen—a warp, in recognition of the propitious moment, wraps itself lovingly around a roll; a machine operator, dyeing bleached yarn, reports greenish yellow stains on a shade of pink, the inspection department reports that the sulphur black is bleeding, the gentleman in the drug room, thinking of his sick wife, reaches out his hand, for this occasion only, for a dye not mentioned on the formula; there is a roar of truck wheels on concrete heralding the approach of trucks bearing re-dyes. A new customer sends in a peremptory rush order for an exact match. The millennium is over, back to work.

An exact match! What is it, what does it mean? We all know what a commercial match is. It is a term used to describe a shade that should look like the sample but doesn't. Well, we all make commercial matches, but deep down in our hearts we feel that even if we did get the stuff out and it stayed sold and produced a re-order, that really it wasn't worthy of the name of match, but that nevertheless we had given it all we had and everything our laboratory had and still it wouldn't look the way it should. It didn't match, it may have been commercial but it wasn't *exact*, something in it was tricking us, eluding us, making sport of all our supposed skill.

Really, to the eyes of some, what could be simpler than to make the color on one piece of cloth or one piece of yarn look like the color on another. It does look simple, you put on a little bit of dye and see how it looks, then you add a little bit more and have another look, the shade is getting nearer, the moment is now at hand, you add just the little bit more it needs and then . . . well, it's just too bad but you have got another of those commercial match things on your hands.

It isn't always Giuseppe or Felicio or Eucalyptus Ike, presiding artists of the drug room, who slipped you a scoopful of something wrong that changed your shade from the going-to-be-exact to the obviously commercial, although they in their time do their bit. No, it was something more subtle, it was the dyer coming up hard against a scientific obstacle to perfection.

The obstacles to perfect dyeing or exact shade matching in productive quantities are not entirely scientific, since the attainment of even a moderate degree of efficiency of course depends, as we all know, on the smoothing out of the human organization, which is not a matter of days or years, but may need generations. All the same, given the perfect yarn and having the perfect organization, the dyer, in the quest of the exact, still comes up against some stiff scientific hurdles which cannot always be overcome. In other words, sometimes an exact match, even an approximate match is impossible, impossible in the full meaning of the word—it cannot be done by anyone, anywhere. Why?

The art of the exact match is the fastness expected of the finished dyeing. Name your fastness and you limit your choice of dyestuffs and once you limit the dyestuffs which may be used, then you have without recourse reduced your chances of perfection.

An exact match can only be expected when there is no question of fastness. Exact shade matching is a fine art which can only flourish when shade is the only consideration, nothing but shade and shade alone. Time, economy, fastness, physical condition of the goods are of no account when you want the exact match.

Of course we all have to consider time, we have to consider fastness, and we come up against some pretty problems in a day's work. What, for example, shall be done when a customer sends in a shade, to be fast to bleaching and the sample he sends is a dyeing of Indanthrene Yellow G which is greenish because of insufficient soaping? Shall we send out our dyeing a match, but lacking in fastness, or shall we add a little blue or green, risking the chance of streaks, or shall we boldly send out Indanthrene Yellow G properly dyed and soaped, not looking like the sample but looking like the sample would look if it were bleached?

We have to preserve the physical qualities of the goods and this is best done by attaining the shade rapidly and yet with all the resources that we have to give us what we think is the correct combination of dyestuffs, we find at times towards the end of the dyeing that something has gone astray. It is those scientific hurdles of which we spoke earlier; which are—let's lead up to this sort of slowly and easily because the going is a little rough, anyway, the reason for the trouble is different spectra in the sample and the dyeing.

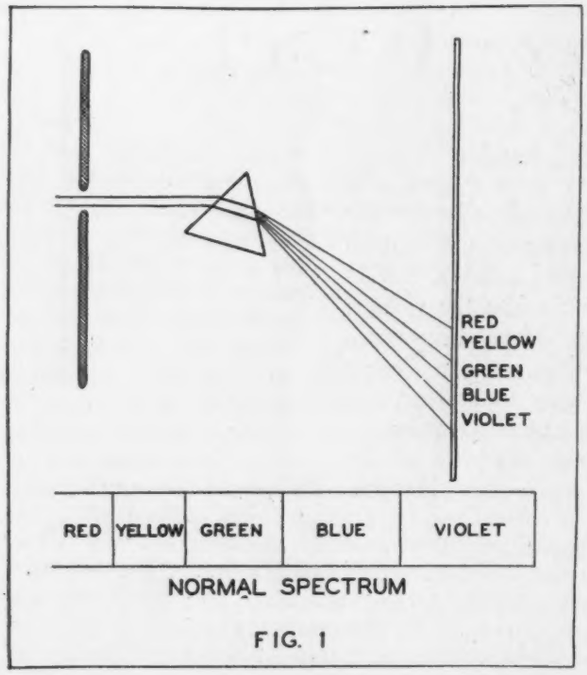


FIG. 1

Now, an absorption spectrum is not, as might be thought, a ghost partaking of liquid refreshment through a tube; an absorption spectrum is what you get when you send a ray of white light through a colored solution and then through a prism.

Looking at Fig. 1, we see that white light passed through the prism has divided itself and formed the complete spectrum. This is a spectrum, not an absorption spectrum, since the spectrum is complete in all its glowing magnificence, or would be if the thing was in colors.

We form the absorption spectrum as, in Fig. 2, by placing a solution of a dyestuff between the light and the prism. The spectrum here is no longer complete, parts are missing, causing dark bands; the dye has absorbed some of the colors, thus forming the absorption spectrum.

This is the thing that causes us so much trouble in our matches and is the reason why our "almost-matches" sometimes go astray at the last minute.

Just because a dye is blue, for example, does not mean that all it removes from the spectrum is the blue band; no sir, nothing so simple; dyes are not perfect, anymore than are those who use them. One blue dye may remove, besides the blue, a part of the red; another blue may leave the red alone but take out some of the green. Looking at dyeings of the two blues you might say, "Well, those two dyes are so nearly alike that it doesn't matter which I use in this combination." And that is where the molecules have a good laugh at us. The red band in the one and the green band in the other will not get in their proper value till you start to use the dyes in combination with, say a yellow. Then things begin to happen, the red band in the one dye will kill the added yellow, making an orange and we all know what happens when we add an orange to a blue; the other blue, having the green absorption band, will make good use of the yellow and produce a green. No addition of dyes to the first blue can ever produce a shade equal to the other blue. Possibly the red blue may be the faster and the green blue the poorest for washing, so if your customer sends you a sample of the green blue and desires an exact match fast to washing you simply cannot do anything about it. Your match may and undoubtedly will be commercial but it will not be exact; you have the choice of washing fastness and a shade a little off, or an exact match with poor washing fastness. That explains some of the so-called commercial matches we meet in the trade. It wasn't the dyer's not knowing his stuff nor being careless. The reason was that Nature has not allowed the dye makers very much choice in always joining up the fastness with the desired absorption spectrum. The dye makers have done and can do wonders, adding on a little bit of something here and taking off a little bit there till the absorption spectrum was more like what they wanted but they still cannot always make dyes of all shades which are not affected by gaslight for example. Two dyeings the same in shade but dyed with colors of different absorption spectrum may match at 7 o'clock in the morning, will be a little off the shade at noon and by quitting time be apparently two totally different shades; next morning the whole business begins again.

Two dyeings made with the same dyes will match in any light, but when the dyeings are different in absorption spectra the shades will be different with every change in the daylight. That, of course is why we use a north light, when we can get it, but when our dyes are chemically the same as those used in the customer's sample we can safely do the matching in any sort of light.

Each dye has its own characteristic absorption spectrum and this is dependent on the way the chassis of the molecule is put together. Poor simple folk, all we do is just try to dye to shade and let the absorption spectra take care of themselves. Mostly this is what they do but now and then, especially in hosiery dyeing, they arise in their majesty and throw us for a loss and then we wonder why that shade seems to be

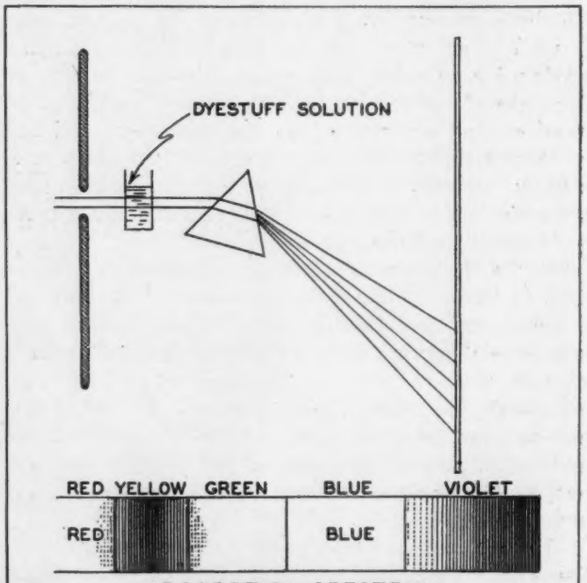


FIG. 2

such a difficult one.

To see what absorption spectra are doing for use daily in the hosiery business, let us hie ourselves to the laboratory and dye a shade of beige on the red tone using Catechu B, Orange G and Black L. Then let us match this shade with, say Brown CG, Brown M and Black, with any additional colors that are necessary.

Having obtained our two formulae we now proceed to make two more dyeings of each formula, call the first one A and the second B. To one dyeing of A and to one dyeing of B we add 1/50% of Black L and to the remaining dyeings of A and B we add 1/50% of Blue FF.

The two dyeings of B after drying will be not so very different in shade from each other or from the original sample but the dyeings of A treated with the Black and the Blue will be found to be totally different in shade from each other and the sample.

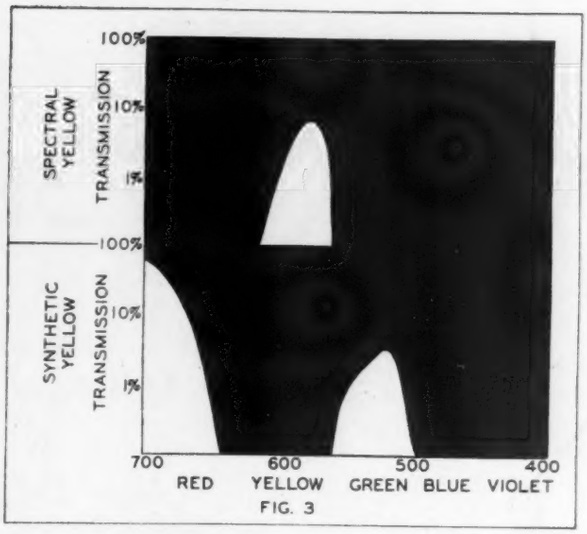


FIG. 3

For this illustration, we are indebted to Dr. C. E. K. Mees, director of research, Eastman Kodak Co., Rochester, N. Y., who explains, "Above are shown the absorption spectra of two specially made yellow solutions. To the light of a tungsten lamp these solutions match each other exactly, but in daylight they do not match at all, the 'synthetic yellow' being green and the 'spectral yellow' being red."

In connection with this illustration, Mr. Schroeder offers the following comment: "Two dyestuffs of the same shade can and usually do have totally different absorption spectra. Dyed as self-shades and looked at in a good North light, they are an exact match. But now add to each one an equal amount of a shading color—or, which is the same thing, expose them to poor daylight or to to artificial light, and what has happened? The exact match has gone, vanished mysteriously, leaving behind maybe a wreck or maybe a commercial match. By the same token, Fig. 3 shows the inner workings of two yellows which match perfectly in artificial light, but which are changed by daylight."

How is this, is it indeed possible to have two shades, which match each other until they each are treated with the same amount of black or blue? It doesn't sound right, but it is so, just the same. Now what caused it? Well, the reason is our dear friends, the absorption spectra. In match B we used dyes, so many of them, that the desired shade was produced by a series of absorption bands more or less even all down the spectrum, naturally slight additions of one more of the dyes would not have much effect.

In match A we used dyes containing few but very definite and strongly marked absorption bands, each of the dyes listed, the Catechu B, the Orange G and the Black L contain red absorption bands, very few yellow bands. The shade is produced by delicate balancing, much the same as balancing barrels on top of a fence. Now when we add the Black L the additional red and blue bands upset the delicate balance, when we added the Blue FF we were adding green bands which were not there until then and so obtained a new shade of totally different characteristics.

Combination A is a true hosiery dyeing combination, since without speaking of its dyeing properties (which are good) it contains the characteristics essential to mode shades. Those classy mode shades which come to us from France as being the latest word in *chic* (whatever that may be) are nothing but very clever, very cunning shades produced by dyes containing few but strongly marked absorption bands and those mostly in the red. These red absorption bands are then delicately controlled by the use of varying amounts of dyes containing yellow or green absorption bands, the result being those sophisticated hosiery shades which look so well on Durene or other popular hosiery materials.

When we dyers start to match those cunningly prepared shades with dyes of different characteristics we succeed quite well until we get very close to the shade, then our match seems to lose depth, we add more dye and finish up off shade and much too heavy.

Of course it is not exactly possible for dyers to rush around their dyehouses bearing spectroscopes, in addition to pH outfits on their shoulders, and anything else they choose on their hips, but it is not too much to ask of the dye makers that they publish the absorption spectra of their various dyes. When we get familiar with these complicated things we shall be able to choose and to grade dyes much more exactly than now. This would be helpful to our chemists in their shade matching and some day we shall have in our laboratories a machine which will write out for us the absorption spectra of the customer's shade and then our matches will have a better chance of being exact and will start to pull away from the frankly commercial match since it is a fact that until the sample and the dyeing are the same in the absorption spectra, the match cannot possibly be exact.

Joseph H. Bragdon

As this issue was closed, notice came of the death of Joseph H. Bragdon, publishing director of *Textile World*, and vice-president and general manager of the Bragdon, Lord and Nagle Company division of the McGraw-Hill Publishing Company, at his home in New Rochelle, N. Y., on Wednesday evening, February 19th. Death came suddenly following an illness due to pneumonia.

Mr. Bragdon was 43 years of age, and his death is an occasion of extreme sorrow in the publishing fraternity and the textile field. He was a past president of the Associated Business Papers, Inc.

Observations of HANK G. SPINDLE, SUPERINTENDENT

By H. Gilmer Winget

Article VI.

USUALLY, HANK devotes his discussions to things that relate specifically to the cotton mill. In this one, however, he has branched out into a subject that is more general. His remarks and observations on this subject will apply with equal force to you, whether you are a mill man, a supply or machinery salesman, an engineer . . . or an editor.

Mr. Winget has, as usual, given us a complete and detailed account of Hank's ideas. Further articles in this form will be published in forthcoming issues.—THE EDITOR.

I MET OUR FRIEND HANK sometime ago as he was leaving the post office, after getting his mail. He greeted me warmly, and we gossiped a little while about things in general and nothing in particular. I was edging away from him when he suddenly said,

"The moon fulls tomorrow, and now, as you know, is the time to do some fall fishing. The drum strike best then, and it is the ideal time to do surf-casting. If we were at New River inlet we could drag out some big ones. I feel a fishing spell coming on, and when a fellow feels the fishing fever beginning to rise it is useless to try to ward it off by taking aspirin tablets and gargling cocoanut oil, as I did once during the 'flu' epidemic. No sir ree, nothing will afford ease or cause a cure except to haul out the old tackle and 'hit' it' for the ocean. How about joining me on a couple of days' fishing trip?"

"Well," said I, "you know I'm pretty busy just now, but I will try to make the riffle. When do you want to start?"

"Tomorrow morning at three o'clock sharp," said Hank, "then we will arrive there in time to catch the tide just right."

We went; we fished; we talked, and we caught ten nice drum, as well as a lot of other kinds of fish that make their home in the "briney deep." We did very little sitting around the camp, but I managed to draw Hank into conversation once or twice, and his observations are written here without notes, as I remember them.

In answer to the question, "Why do so many men fail to succeed?" Hank replied,

"Well, I suppose you asked the question about men generally. I take it, as we are engaged in the manufacture of textiles, that you refer to those of us who are superintendents, overseers, second hands and section men. There are various reasons why men fail, but the reason that most men fail is because they are lazy. There are, as I have just said, other reasons, big and little reasons, but the larger per cent of failures are due to the one thing, *laziness*. The lazy man has several well known traits that distinguish him from the rest of the race.

"Now I know many of the readers, and especially those who know me, will say at once, that I might be an authority on laziness by reason of possession and of close association therewith, and I am equally sure that if Mrs. Hank should read these lines she would see to it that I gave her a demonstration of my wares. Back, however, to the characteristics of a lazy man and what it means to be lazy.

"To be lazy means, in the first place, to be late. I am connected with a large Sunday School, and I have noted, Sunday after Sunday, the arrivals. The school opens at 9:45 and they start coming about 9:30 and keep on straggling in until Sunday School is over. Among my duties one is to look out for strangers and new-comers, and while meeting them at the church door I hear all kinds of excuses for being late—'The cook did not come'; 'Did not hear the bell'; 'Had a tire down'; 'Run out of gas,' etc.

"Now, I have also been at a circus and have seen the same folks follow the parade to the show grounds before noon; they are the first to see the animals and they are seated under the tent an hour before the big show begins. Honest now, did you ever know many people to miss being on time at a circus? Now I have nothing against a circus, and I expect to go to one every time I have an opportunity. I hope that I may always have that child-like and youthful spirit which will make me love a circus. But the point is, that we, as a rule, can be on time if we want to be, and want it bad enough. The fellow who is making a habit of being late has little chance of succeeding in any line of work or business. Have you ever started fishing or hunting and had to wait on some fellow who could have, just as well as you, been ready? Have you ever had a business engagement and had to wait for the other party until you were angry, knowing that he had more time at his command than you had? Did you ever start out to pick up three ladies in widely

LET US REMIND you again that HANK G. SPINDLE *invites you to send to him any suggestion for a subject to be discussed in a later issue. Also, if you will submit any practical mill problem that is bothering you, Mr. Winget will turn it over to* HANK *and he will try to give you some helpful information concerning it. These should be sent to* HANK G. SPINDLE, *care of the* EDITOR *of* COTTON.

separated parts of the city, for the purpose of taking them on some religious, prison or hospital work. If you have, you know what it means to drive up to a house, blow the auto horn and have the lady stick her head out the door—you knew that she was so undressed that her head was the only thing she could expose without shocking you—and say, 'I'll be ready in a minute.' Then you settled down for a long wait, and this wait was repeated at each separate house, and little time was left for the success of the work in hand. However, I had better 'lay off' concerning my observations of the fair sex, as I am getting too far away from my text, 'Why Men Fail.'

Do You Know Any Clock-Watchers?

"Time is one of the greatest factors in a man's life, and someone, somewhere, has said, 'Lost yesterday, somewhere between sunrise and sunset, two golden hours, each set with sixty diamond minutes. No reward is offered. They are gone forever.' Just so, the man who is always tardy has lost some of the minutes referred to, and his chances for success are shortened. Your most valuable worldly possession is your life, and it is a chain of seconds, minutes, hours and days. If we admit that 'time is money' then we should not waste time. It has been wisely said that if a man is given time, he may make a fortune, but that a fortune cannot buy back the wasted minute. Another trait of the lazy man, therefore, is his inclination to waste time. One of the most common excuses given is, 'I didn't have time,' and in some remote cases, that has been true, but the general run of excuses of that type typify laziness, shiftlessness and time-wasting, and a person so afflicted would hardly be expected to keep an appointment, and he would block progress, or at least delay progress.

"Haven't you seen the professional 'clock-watcher?' He begins pulling his watch out a half hour after he starts to work, and keeps it up all day. He does it so often that a 20-year, gold-filled case lasts only a few months. The friction of putting the watch in and taking it out of his pockets so often actually rubs the gold filling off the case and he wants to return it to Sears, Roebuck for a new one under the guarantee. The watch makers failed to take into consideration that some buyers might use the watch as much in a year as they should in the 20 years.

"To some men the new day is another day of drudgery, while to others it is an engagement with opportunity. It is not hard to tell which one of them will be found higher up on the ladder of success. Roughly, all of us may be put into two classes, those who are lazy and those who are smart and ambitious; those who conserve time and those who waste time. You do not catch a 6:00 A. M. train at 6:10, that is, not very often. You are generally there before the time for departure. My observation has been that the time waster gets along rather slowly on the up-grade to success.

"Another common trait of the lazy man is his propensity to shirk responsibility. If anything is to be done, 'let George do it.' That is the shirker's platform. He means to say, that if anything must be done, someone else must do it, that it is not his work. My observation has been, when a real job is to be done it is given to the already busy man, and I have also observed that the shirker is always glad to see the job pass him by and he is often loud in his remarks at church meetings, civic club meetings, etc., and in his suggestions as to what should be done, and brags about being smart enough to have the job saddled upon some fellow who, most likely, is three times as busy as he is. The real truth is that such a fellow is generally lazy and lacks a long shot of being smart.

"The fellow in the mill who is afraid that he will perform some little service that is not exactly his job, will amount to little, and failure is certain, not so much because of not doing the service but because laziness is likely to be chronic.

"I knew a card room overseer who had been in the habit of sizing roving in a slipshod sort of way, who, when required by a new superintendent to size it in a better and more effective way often threw up his job. He had a nice room to run, with a splendid company, had been promoted from card tender to grinder and up, and his future looked promising, but he resigned all this to his successor, just because he got the idea that too much was being expected of him; that it was not his job. I would not say that laziness solely, was the cause of his failure, but the spirit of resentment must have been nursed by laziness and furnished food for an imaginative mind and his conclusion was that the extra work, though slight, was quite too much, and more than he could stand.

"You have noticed that the late comers to work, as a rule, are the first fellows to jump out at the close of work hours. They are prompt and regular in knocking off if they are not prompt in anything else.

"People differ greatly in their make-up. You find many of them who will do pretty well as long as someone is stirring them up and pushing them along; when, however, they are left to pursue their own inclinations, they fail miserably. I grant you that some smart people fail, but the chances for success are, ten to one, better for the man who is not lazy.

"Summing up these observations, I feel that I should repeat, that to be lazy means to be late, to be slovenly, to be a time waster and to be a shirker of responsibility. There are minor reasons for failure, but most failures are backed up by the major cause, laziness.

"Having said this much, I know that you are asking, mentally, 'What is the good of the diagnosis, if

(*Continued on page* 505.)

Textile Profits *in* 1929 *Showed Improvement*

An Illuminating Analysis of the Earnings of Twelve Prominent Mills Which Emphasizes Importance of Good Management

By E. G. Field
Wm. H. James & Co.

WITHOUT A COMPLETE STUDY of an extensive number of concerns it is not possible to state the extent of progress made by the cotton textile industry in 1929. Contrary to the impression being carried by many people, both within and without the industry, many companies did show a decided improvement in their 1929 profits in comparison to those reported in the prior year.

In support of this statement attention is directed to the results shown by twelve prominent mills reporting earnings in conjunction with their balance sheets. These reports were openly published during the last three months. They include annual statements for the fiscal years ended:

Closing Date	Reports
June 30	1
August 31	3
September 28 and 30	5
October 30	2
November 30	1
Total	12

While not sufficient in number to furnish a typical example of the entire industry, they are significant for the important positions attained by these companies in past years. The total values as consolidated from the twelve independent companies present a sample of fair size:

Item	In 1928
Net Profit	$ 5,581,114
Working Capital	32,004,006
Net Worth	110,702,000
Total Assets	128,356,807

It is this group representing over $110,000,000 of net worth (preferred stocks, common stocks and surplus) at the close of their respective 1928 years that will be used for illustration.

What did 1929 accomplish? The net worth was increased almost three per cent, while dividends were continued. The working capital was increased over sixteen per cent, and the total assets showed an increase of about 2½ per cent. This resulted from the increased profits:

Net Profits	1929	1928
Amount	$ 7,316,432	$ 5,581,114
Proportion	% 131	% 100

The consolidated profits were increased by 31 per cent! These mills have made a substantial recovery. Naturally, the percentage increase in profits looks high but that is due to the profits in 1928 having been relatively low. The increase was, however, far from uniform with these mills. Still it is a mark of credit to the respective managements that have demonstrated what can be accomplished by serious application to the problems confronting them and especially with the lack of co-operation within the industry and the intense competition from the poorly managed mills.

The spotty condition shown by these twelve individual companies in their respective lines is illustrated by their profits or loss in relation to net worth, thus:

Company No.	1929 Net Profits per $100.00 of 1928 Net Profits	Net Profits per 100.00 of Net Worth In 1929	In 1928
1	$ 119.59	$11.11	$ 9.65
2	120.14	11.09	9.84
3	119.73	9.84	9.75
4	153.87	8.89	5.90
5	238.84	6.17	2.70
6	141.09	5.15	3.62
7	1,068.50	4.87	.47
8	83.14	4.67	5.61
9	118.22	2.96	2.53
10	220.44	1.26	.58
11 Loss	49.43*	5.06*	9.74*
12 Loss	697.98*	17.94*	2.17*
Total	$ 131.09	$ 6.42	$ 5.04

*Note: Company No. 11 and Company No. 12 showed losses. The others' figures represent gains, as does the total.

While the net profits have been increased by 31 per cent, the net worth was also increased by three per cent. With allowance for this change, the improvement in earning power was over 27 per cent.

Now, the no-risk interest rate is normally about 3½ per cent and probably averaged nearer to 4 per cent during much of 1929. With this base of 4 per cent return, it may be well to look back at the last tabulation. Each mill with a return of over 4 per cent, or $4.00 per $100.00 of net worth, represents a management fully alert to its opportunities and actually helping the entire industry while distributing profits to its respective stockholders. They have a place in economic industry. The mills with returns below 4 per cent are showing improvement with the exception of one that has rapidly increased its loss.

Each reader can quickly place the position of his company in relation to the no-risk interest rate of 4 per cent and in comparison with these other mills. If his company is above that line, then it is up to him to continue solidly in support of its directive management. If his company is below the 4 per cent line, it is a direct contributor to a bad situation within the industry and is promoting an uneconomic condition.

It is not uncommon to find that the mills with the poor showing are being carried by banks and commission houses. Although the lender may protect himself temporarily in various ways, including personal indorsements, the lender is increasing his risk unless definite corrections are promptly applied. Likewise the lender, in temporarily propping a weak company,

often is contributing to the troubles within the industry by encouraging ruinous competition and over-production. While the banks may avoid such textile loans, the commission houses are increasing their interests in many mills that are going to require reorganization.

The first essential for profits is an able management, which in turn will insist upon capable assistance, and will bring forth the substantial and sound policies that are a fundamental requisite. A company makes profits largely in proportion to the quality of its policies. The mills with proper sales policies and sound manufacturing policies are the ones with progressive labor policies.

In some instances the lack of profits is related to improper past policies that have impaired the company's financial position. To assist in locating such conditions, the following tabulation of key figures is represented:

Company No.	1929 Amounts per $100.00 of Total Assets Net Profits	Net Worth	Working Capital
1	$10.72	$96.49	$40.34
2	10.75	96.88	56.69
3	7.92	80.46	33.45
4	8.32	93.51	16.76
5	4.94	80.00	21.94
6	5.04	97.90	40.14
7	3.57	73.32	4.39
8	4.33	92.78	20.41
9	2.47	83.47	27.03
10	1.12	88.33	22.48
11 Loss	3.63*	71.68*	22.86*
12 Loss	6.90*	38.48*	11.94*
Total	$ 5.55	$86.41	$28.17

Note: Company No. 11 and Company No. 12 showed losses. The others' figures represent gains, as does the total.

This total net profit at 5.55 per cent of the total assets is equivalent to over 6.4 per cent on the net worth and is accomplished with a working capital at over 28 per cent of the total assets. The first three companies, leading in profit per net worth, show working capital at over 1/3 of their total assets.

Given a mill with reasonable financing, good management is the deciding factor in providing modern equipment and in using progressive methods to make profitable lines of merchandise. Proper financing can be furnished to the management that has established its reputation. The first essential is good management.

Observations of Hank G. Spindle.

(*Continued from page* 503.)

no remedy is offered?'

"I could suggest some remedies perhaps, except for the very chronic, inherited cases, and I am one of those who believe, to some extent, in inherited laziness. Failure, however, from laziness, is generally elective. There is a price to pay for success. It is up to the man himself to care enough, be ambitious enough and wide-awake enough to make a success of his job.

"One of the best suggestions which I could offer, perhaps, would be, keep yourself from being a spendthrift of time. The surest route to failure is that of 'time killing.' Many persons who would not think of stealing a dime will cheat their employer out of time, and, as 'time is money,' the offense is very much the same.

"There is a difference in the movements of people; sometimes because of illhealth. This, however, is something besides laziness. The person who is never well is to be pitied, as he cannot have the ambition and 'pep' to make him work with zest.

"Many people are unable to take advantage of opportunities because they are sluggards; they are too slow to get a glimpse of opportunity when it passes by. Others are mistaken in that they think opportunity is a chance to make money and attain success without working for it. I recall a portion of a proverb in the Bible which reads, 'The sluggard would not plow by reason of the cold, and therefore did not reap the harvest.' Just so, the farmer referred to in the proverb, sat by the good warm fire, because of the cold, and did not plow while his neighbors were plowing. His reward was, no grain at harvest time, but theirs was grain in abundance. I do not just now recall the rest of the story, but I am sure that the fellows who did plow had to feed the fellow who would not plow, just as it is today. Fundamentally, human nature has not changed since that proverb was written.

"The fellow who succeeds is the one who tries to do the job a little better than it was being done when he accepted it as a job.

"Do not make a lot of 'whoopee' in doing your work. That has never fooled anybody about your activities. The job, if done properly, will speak for itself, and a lot of useless motions will not impress the manager. You cannot fool him so easily. That is one reason why he is manager.

"The goal of every ambitious man should not be for more wages, but rather for more earning power, and if that goal is obtained, the natural result will be more wages.

"By heck, do you see that tide? Do you see the breakers and the silvery spray? Did you see that sand crab reverse himself and travel down the beach? Do you see that the tide is just right for surf-casting. Let's 'beat it' down to the mouth of the inlet."

This we did, and lifted, or reeled out of the blue Atlantic some fine specimens of the finny tribe, after which, we went to the tents and to bed, and slept, as best we could considering the roar of the ocean on one side and the humming of mosquitoes on the other, to say nothing of mosquito bites.

S. T. A. Annual Meeting June 27-28.

It has been definitely announced that the annual meeting of the Southern Textile Association will be held on Friday and Saturday, June 27th and 28th, at the Ocean View Hotel, Myrtle Beach, S. C. Definite plans for the program have not been announced, but it is stated that an interesting schedule of reports and addresses is being arranged. L. L. Brown, of Malvern, Ark., retires as president with this meeting, where the annual election of officers will be held. J. O. Corn, superintendent of the Pacific Mills, Columbia, S. C., is vice-president, and Walter C. Taylor, Charlotte, is secretary-treasurer.

Myrtle Beach is an attractive seashore resort, and a splendid attendance is anticipated for the meeting. Golf, swimming and other forms of diversion will be available for the delegates and their wives between sessions of the convention.

Records *that* Keep Track *of the* Cotton *in the* Mill

By J. J. Berliner

ONE of the most difficult accounts to keep is that of the baled raw cotton traffic of a cotton mill corporation. Almost every mill has a special system peculiar to its own environments. Some of these systems are very good, some fairly good, others are so poor that the cotton account is always tangled. The cotton account of a plant is a very important part of the business. And for want of a reliable system, the writer has known of mills having a good deal of needless trouble, such as getting entirely out of raw cotton with which to operate the plant; unloading and receiving cotton which belonged to some other mills; ordering the wrong cotton; buying at a serious loss; the losing of anywhere from one bale of cotton to an entire shipment or carload; the using of cotton before it was paid for; using wrong grade on a particular order and getting different grades mixed.

The cotton account has become so tangled or uncertain that some mill men, in years past, have been actually accused of stealing bales of cotton. Therefore, it can be readily understood that the cotton account is important and most mill men give it their most careful daily attention. A great deal depends upon this end of the business. The cotton market is very often painfully uncertain and an unknown quantity, and because of this some of the smartest and most competent of mill men, brokers, buyers, speculators, growers and sellers have been fooled and disappointed over and over again.

Nobody can forecast what a day may bring forth in the raw cotton trade. One of the most successful cotton manufacturers once stated that it was really the best guesser rather than the best informed who could always hit the right course. Of course he did not really mean random guessing but he meant that there are so many influences brought to bear upon the cotton market that to hit the right course, an expert must study hard and take into account every power which influences the situation before placing his order and then guess the result. This is just what he meant. However, a mill must have plenty of cotton: it must be purchased right and be properly looked after. The following system used by some of the leading mills, gives ample satisfaction.

How to rule the page of the big cotton book kept in every well regulated cotton mill office is illustrated in Form I. The page is divided into eight different groups or sections, as follows: 1, orders placed; 2, invoice particulars; 3, bill of lading particulars; 4, receiving particulars; 5, weighing particulars; 6, tare particulars; 7, total gain or loss; and 8, remarks.

Under these eight groups there are forty columns showing the transaction and movements of the goods on paper, from the time it is consumed at the opening machine.

Under Group No. 1, orders placed, the particulars of each order complete is recorded in columns Nos. 1 to 7 inclusive, as follows: 1, number of the order; 2, date of the order; 3, total bales ordered; 4, the grade wanted; 5, the length of staples specified; 6, the price at which purchased; and 7, the broker through whom same was purchased.

COTTON ACCOUNT
PEELER STOCK

ORDERS PLACED							INVOICE PARTICULARS						BILL OF LADING PARTICULARS				RECEIVING PARTICULARS							WEIGHING PARTICULARS (GROSS)						TARE PARTICULARS				TOTAL GAIN OR LOSS				REMARKS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
NO.	DATE	BALES	GRADE	LENGTH OF STAPLE	PRICE	BROKER	SHIPPER	BALES	NO.	DATE OF INVOICE	DATE INVOICE REC'D.	BALE MARKS	DATE	CAR NO.	R.R.	GROSS WEIGHT OF COTTON	DATE REC'D	TALLY SHEET NO.	BALES	GRADE	LENGTH OF STAPLE	CHARACTER	CONDITION OF BALES	CAR NO.	THEIR WEIGHT	OUR WEIGHT	GAIN LBS.	LOSS LBS.	% GAIN	% LOSS	OVER LBS.	UNDER LBS.	% GAIN	% LOSS	GAIN LBS.	LOSS LBS.	% GAIN	% LOSS	
1	9/27	60	M	1 1/16	10		50	40	Jan 30	Feb 8	XXX						Feb 5		49	OK	Sea Island		OK		26000	26260	260		1			0. K.			260		1		and (1) bale Tare
																	Feb 16		1	OK	OK	Sea Island	OK		500	505	5		1		5	(under)		2 5/8	10		2		1 bale in Feb
		9								2					3						4						5				6				7			8

FIG. 1

Soon after the order is placed, the invoice is received and the particulars are noted in columns Nos. 8 to 13 as follows: 8, shipper's name; 9, number of bales invoiced; 10, number of the invoice; 11, date of invoice; 12, date invoice received; and 13, marks on each bale of this lot of cotton.

Following the invoice sheet the bill of lading is the next important document, particulars of which are recorded in columns Nos. 14 to 17: 14, date; 15, number of car; 16, name of railroad; and 17, gross weight of the lot shipped.

Upon arrival of the cotton, the receiving clerk fills out the column of section No. 4 with the following notes: 18, date cotton is received; 19, tally sheet num-

ber; 20, bales received; 21, grade of cotton; 22, length of staple; 23, character of the stock; 24, condition of shipment; and 25, car number.

The reason for repeating the car number in this section is that in case the car number is not the same as given on the bill of lading, careful attention will be given to prove if contents is really the lot wanted. If the lot is right, then the cotton must have been transferred from the original car owing to some accident or some other cause. The condition of bales is also noted so that in case of shortage in weight, claims can be more definitely substantiated.

The section or group to command serious attention is that which is devoted to the cross weighting particulars. A great deal depends upon the weight received. Having the seller's weight is insufficient. So in columns 26 to 31 is given the following: 26, their weight; 27, our weight; 28, gain in weight; 29, loss in weight; 30, per cent gain; and 31, per cent loss.

As the tare particulars cannot be ascertained until the bales are opened, therefore, this section is separated from the gross weighing data. So in columns 32 to 35 are given the over or the underweights and

COTTON CONSUMED

MILL NO._____
NAME OF COTTON_____
MIXTURE NO._____
TO MAKE_____
RUNNING QUALITIES IN GENERAL_____

DATE OPENED	FROM STOREHOUSE NO.	BALE MARKS	GRADE	STAPLE	STRENGTH	COLOR	CHARACTER	GROSS WEIGHT	TARE	NET WEIGHT	IF REJECTED, WHY?	TOTAL DATA

FIG. 2

that invoices of cotton shipments are ruled so as to enter the bale weights in groups of ten each.

The next important step in the department of raw cotton accounting is to record the amounts consumed. This account (Form II) must be as accurately kept as any other department of mill accounting. There are several reasons for this. First, a great deal of cotton is never paid for until taken into the mill for immediate consumption. As soon as a lot of cotton is removed from the storehouses a report of it is made to the consignees and the same is promptly paid for. The second reason is that the running stock on hand must be accurately kept to avoid false values or bal-

TALLY SHEET NO._____ MARKS_____ PUT INTO STOREHOUSE NO._____
LOT OF_____ BOUGHT BY_____ INVOICED WEIGHT_____
OUR WEIGHT_____
AND SHIPPED TO_____ MILLS, CLINTON, MASS., FROM_____ DIFFERENCE_____
TARE_____
AS GRADE_____ STAPLE_____ INVOICE NO._____ DATE_____

CLERK'S RECEIVING REPORT			WEIGHER'S REPORT			COTTON EXPERT'S REPORT																SUPERINTENDENT'S REPORT				
						LENGTH OF STAPLE						STRENGTH				LEAF		SAND		COLOR				CLAIMS		
DATE RECEIVED	CAR NUMBER	RAIL ROAD	BALE NUMBER	WEIGHT	TARE	⅞ INCH	1 INCH	1 TO 1⅛ IN.	1⅛ TO 1¼ IN.	1¼ INCH	1¼ TO 1½ IN.	STRONG	FAIR	WEAK	POORLY BALED	POOR GINNING	SLIGHT	VERY	SLIGHT	VERY	OFF	TINGED	STAINED	GRADED AS	REJECTED	DATE ENTERED	DATE SETTLED	DATE OPENED	REMARKS

SIGNED ..... SWORN WEIGHER

FIG. 3

the percentage of either gain or loss to the company purchasing the cotton. That is, the more tare, the greater loss to the purchaser. This brings us to the seventh section, giving the total gain or loss. The eighth section is left open for any special remarks.

The tally sheet (Form III) is to give data of each bale and is practically started when the cotton arrives. The receiving clerk makes out his report of the data received, car number and the railroad which delivered it. The sworn or public weigher will make his report of weights and will number and tag each bale. The expert cotton sampler will test the length and strength of the fibers, also note the color and condition of the stock in general and give it his official grading. The cotton is now turned over to the superintendent for his disposal. He may accept or reject and make claims on any or all of the cotton according to the standards which have been set. He is guided by his most careful and expert knowledge of the manufacturing conditions. As a matter of interest it may be mentioned

ances and to avoid big reductions at stock-taking periods. The third reason is also a very important one and that is to use up the different grades and qualities of stock on hand so that an average blending of the mixtures will carry out even with the season's buying of cotton. For example, it would be disastrous for a mill to consume all of its best cotton first and be left with one poor running cotton at the last. And yet for want of good accounting systems, some mills have

(*Continued on page* 509.)

Frothy Solutions *in* Fire Fighting

By H. L. Kauffman

THE MORE EXTENSIVE USE in mills of frothy solutions as a means of extinguishing a small fire before it has had a chance to spread makes timely the present brief discussion of the proper method of fighting such fires. And since such foam-generating solutions are particularly applicable to inflammable-liquid fires, the proper method of fighting this kind of fire will be especially emphasized in this article.

There are two principal methods of extingushing *any* fire out of control, namely:

1. To cool the burning material below its kindling point.
2. To exclude air; that is, oxygen.

Water is a representative medium for accomplishing the first of these results; carbon tetrachloride and frothy solutions, the second. Water is effective on general fires, but will not cool an oil or other inflammable-liquid fire sufficiently to extinguish it. Carbon tetrachloride will blanket an oil fire, but is ineffective as a cooling agent for general fires. Frothy solutions, because of the tight-fitting seal of carbon dioxide generated therefrom, smother the blaze and therefore are particularly applicable in extinguishing inflammable-liquid fires. Consequently such foam-generating solutions, which are capable of producing a blanket to cover the burning liquid surface and to shut out the air—thus stopping the combustion—are being used more and more widely in mills for fighting fires.

But—and please note this especially—there is a proper and an improper method of applying foam to burning oil or other inflammable liquid in order to obtain best results. Since many persons who are called upon to fight such fires do not fully appreciate this fact, a brief description will be given herein of the right and the wrong way to fight fires with froth-making solutions.

"How should this type of fire-extinguisher be applied to a burning liquid?" you ask.

"Put it on gently—in other words, *lay it on!*" is the answer.

If you were asked to cover up a sick patient with a blanket, you wouldn't make a wad out of the blanket and throw it at him, would you? Not at all. You'd spread the blanket gently over the patient so that he'd be disturbed as little as possible.

So it is in applying foam-generating liquids to inflammable-liquid fires; put on the extinguishing solution with as little disturbance as possible to the burning product. *This can be accomplished most effectively by standing at such a distance from the fire that the stream of liquid will strike the burning liquid surface with as little velocity as possible.*

There are two main advantages in thus applying

Left, Fig. 1, showing how a frothy solution is first applied to a free-burning fire—covering the closest burning portions with a protective layer of foam, which will act as a sort of heat-insulating surface between the operator and the fire.

Photos, courtesy American-LaFrance and Foamite Corp.

Right, Fig. 2, showing how, after covering the closest burning portions with a protective layer of foam, the fireman can then approach at close range, without being punished by the intense heat, and fight the fire with the full velocity of the stream, covering all parts with the foam and thus extinguishing the fire.

the froth-making solution to the fire:

1. The solution, dropped lightly on the burning liquid surface, produces only a minimum of disturbance in the main body of liquid. Such a procedure is very advisable for this reason: Most fire extinguishers of this type contain about 80 per cent of moisture; therefore, a stream of same (high in water content) if directed at great velocity *into* a body of burning liquid, the temperature of which is above the boiling point of water, will generate a certain amount of steam. As is commonly known this steam, generated beneath the surface of the hot liquid, is apt to cause a "boil-over" and a further spread of the fire.
2. Those fighting the fire are able to do so with the least possible punishment; consequently, they are able to fight the fire deliberately and with more self-control than would be the case if they were subjected to the more intense heat of the fire at closer range. It must be emphasized, however, that in order to obtain maximum efficiency the firemen must get close enough to the blaze so that they can direct the foam-generating solution where they want it.

In using a frothy solution on a free-burning fire, such as rubbish, a frame building, etc., it is advisable to cover the closest burning portions with a protective layer of foam (see Figure 1) which will act as a sort of heat-insulating surface between the operator and the fire. Thereafter the fireman can approach at close range (see Figure 2), without being punished by the intense heat, and fight the fire with the full velocity of the stream, covering all parts with the foam and thus extinguishing the fire. The recommended procedure here, as is readily noted, is quite different from that followed in fighting an inflammable-liquid fire, where the better practice consists in "laying-on" the foam upon the burning liquid from a distance.

In conclusion, several additional hints on fighting fires can well be given:

1. Never apply water to the same burning surface to which a froth-making liquid is being applied, since water breaks down the foam and destroys its smothering properties.
2. Never apply carbon tetrachloride to the same fire *along with* a foam-generating solution, since carbon tetrachloride merely tends to break down the foam. Use either one or the other, but don't use them together. Tendency to do this is most often encountered when fighting small inflammable-liquid fires.
3. In fighting fires in tanks containing an inflammable-liquid several streams of water can often be applied to advantage to the *outside* of the tank, while at the same time a frothy solution is being discharged on the *inside*. Under these conditions, the water is used merely to cool down the tank so that it will not buckle.

Liquid carbon dioxide and a solution of sodium potassium carbonate, it is interesting to note, represent other types of fire-extinguishing agents that are now receiving marked attention as being especially suitable for extinguishing inflammable-liquid fires.

Acknowledgement. The writer wishes to acknowledge his indebtedness to the American-La France and Foamite Corporation for considerable information used in the preparation of this article—especially to certain writings of Mr. C. B. White of that company; and to this same company also for the use of the two photographs shown herewith.

Records that Keep Track.

(*Continued from page* 507.)

found themselves in precisely this dilemma.

There is still a fourth reason for a correct cotton accounting at the consuming point, and that is to determine the operative continuity of the goods. It is to record the varying points from the standard. A lot of cotton may be found better than average purchased and in a case like this the cotton might be retained for a better grade of goods than that for which it was intended. However, the grades seem to tend downward rather than upward in quality. The trouble is to hold the goods up to even standard.

When utilized, Form II shows a score which gives much satisfaction, as it covers all the points that it is desirable to know. At the upper left hand corner it provides for the mill in which it is opened; the kind of cotton; the lot or mixture number; the goods to be made; and to keep tab on the running qualities in general through the mill. The columns are devoted to the individual bale date as follows: date opened, from which storehouse, bale marks, grade staple, fiber strength, color, character (dirty, leafy, sandy, etc.) gross weight. The tare is here ascertained for the first time and also the net weight of the cotton. It is here also that the podded bales or placted bales are discovered, also where foreign substances may be found. In a bale of cotton there have been found anything from a package of needles to a farmer's plow. A podded or placted bale is one in which a decidedly different grade of cotton is found inside than that of which samples show taken from the outside and by which the cotton was purchased. If for any reason a bale or more is rejected a column is provided for this data.

On the score sheet, at the right hand, are given the summation data—total bales opened and weight, the average quality, staple, color, strength of fibers and the yarn. Total bales rejected altogether with weight are also given. Finally the general running qualities all through the mill by departments is noted. In some well regulated mills, as soon as a lot of cotton is received, it is rushed ahead through the mill, taking in all the processes. In this way a line is secured on the strength and evenness of the yarn and cloth. Likewise any radical departure from standard averages is discovered before the plant is showered with a bad streak of ill-running work and which will make in turn, second quality goods.

In the case of rejected bales of cotton, these are held subject to the broker's orders and against the samples by which they were purchased, the original sample being always retained and numbered the same as the bale which the sample represents. Rejected bales may be inspected by selling agents or they may require them to be sampled outside. In either case the claims are settled by taking back the cotton or by allowing the difference in price for inferiority of grade. In the case of shortage in weight of cotton the claim is properly adjusted by submitting the sworn weigher's figures.

CURRENT TOPICS

Talk of the Month

AFTER SUCH EXPERIENCE as that had by textile mills in recent years, it seems rather ironical to read that the the automobile industry is advised to follow the example of cotton manufacturers. Yet such is the fact, which perhaps may not be much consolation to the cotton industry unless it can take courage from the implication that others have their problems no easier of solution. It may be suggested further, that the cotton industry and all others would have a better chance to appraise their own positions by a study of activities of other lines. We recall reading not long ago that two brothers in a prominent large retail house of the country attributed their success to having started out first with gaining a knowledge of all other lines of business.

Learn What the Other Fellow's Doing

Never was such a course more essential than at present, when the commodities markets—which in the cases of cotton, wool and rubber involve industrial raw materials—are in the throes of international disorganization. It is evident, moreover, that when the automobile industry is urged to turn to cotton manufacture for an example of progress toward healthy co-operation, the tables are turning between the old essential industries and the producers of the modern conveniences of life. Or perhaps we should say rather that the two classes of manufacturing are coming into a new adjustment. But in any case it is essential for the producers of cotton constructions, of whatever kind, to gain a broad-gauge view of economic movements to set their course right.

We may go further and emphasize remarks recently made here about international co-operation in the cotton industry, as well as general economic co-operation within the country—as suggested by the Hoover conference after the stock market break—as something never more important than at present. Individual units in one industry of the country have long since found the need of united effort toward the solution of their common, fundamental problems of supply and demand, price stabilization, etc. Individuals in different lines compare notes and find themselves confronted by common fundamental difficulties. Nothing bears this out better than the case of automobile manufacture, to which the cotton industry has been turned as a model, now seeking or advised to seek inspiration from the latter.

The Federal Farm Board

For some time the by-word of trade has been co-operation within individual industries and competition of industry against industry for the consumer's dollar. It might be far-fetched to suggest general co-operation of industries, but after all production is only for consumption and the success of each in the long run depends upon the prosperity of all. And as in tariff matters the country has common cause, so it has in the healthy adjustment of supply to demand in raw materials and in converted products. An immediate matter concerned with the Government stresses the point. That is the effort being made under the auspices of the Federal Farm Board, for stabilization of agriculture.

This move of itself may turn out for good to industry, since the disorganization of the cotton, wool, steel, rubber, tin or other markets is a disturbing factor in manufacturing. At a time when it was hoped, and expected, that cotton manufacture would be on the mend the industry was unsettled by the drastic settling of values for the raw material. A stabilized basis for raw material is essential to the well-being of the mills. If the various government agencies working in co-operation with agriculture can ultimately produce a new condition of stability in raw materials, they will create a situation favorable to industry and of lasting benefit. That remains to be demonstrated.

On the other hand, industry in general needs a compensating force for stability. There are private organizations capable of dealing with the problem. Even now the Wool Institute, the Cotton-Textile Institute and others are taking constructive steps to this end and observing one another's activities toward co-operation in solving fundamental problems. If industry cannot work for stabilization, such a move for agriculture will have an obstacle in its way at the start. All industry has a stake in seeing that the Government is not on both sides of the fence in its attitude toward stabilization.

The Breaks In Cotton

Breaks in the price of cotton since the first of the year have of course changed the situation in regard to the pricing of goods. Adjustments to make values in fabrics accord with those in raw material are not the unscrupulous price-cutting against which the textile industry's leaders have taken a common stand. If it were the case that cotton growers could make a reasonable profit on the raw material at the recent low basis, the situation throughout the industry would be satisfactory. For the prospect is not remote that the break in cotton will allow manufacturers to turn over a larger volume of staple goods this year than last, because of the better values possible.

Effect of International Competition in Cotton

Of much concern, though perhaps indirectly, to the manufacturer is the outcome of the international competition in raw cotton and its effect upon stabilization of the American crop. The situation that has been developing for a quarter of a century abroad is no longer one to be ignored. The effect is a very real one the current

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season, foreign competition being one cause back of the recent weakness in American cotton. Whether the cotton growers can be brought by pressure of such competition to undertake more scientific control of the crop is likely to be of more significance in the long run than Government aid. Control of weevil, better selection of seed, rotation of crops and more intensive cultivation of less acreage are necessary under any marketing system. Growers should have a fair profit, but the American crop stands to be hard pressed if it is not re-established as one of quality well above the run of foreign cottons.

It is the experience of research in England during the past year that such activity is being conducted in industries more amply and successfully than means are being taken for applying its results to practice," according to one authority. The same factor admits, however, the need of continued research and we have interesting developments in textiles both here and abroad to witness its value. Among the new ideas now before the trade are moth-proof wool fabrics, which appear to be established, and efforts toward non-wrinkling or creasing cottons and other cloths. The latter is under investigation or experiment on both sides of the Atlantic. A new non-shrinking cotton also is said to have been developed, by a New England mill.

Advices from England suggest that the Lancashire Cotton Corporation, formed under the auspices of the Bank of England, is making notable progress with plans for improvement of the cotton industry there, the conditions of which were discussed in an article in the February issue of COTTON. The new organization is thought destined to be a big factor in the future of Lancashire. Sir Kenneth D. Stewart, chairman, reports that 10,000,000 spindles, as well as several thousands of looms, already are coming within its control. The spindles will stand on the books at around half the replacement cost today. It will be well if a vital new force has been injected into the industry, as intimated.

To Reduce Irregular Employment

In conferences conducted last month by the Cotton-Textile Institute, an important number of southern and New England manufacturers have recommended measures to diminish irregular employment in the textile industry. The recommendation contemplates a voluntary adjustment on the part of mills generally so that the day shift shall not exceed 55 hours per week and the night shift shall not exceed 50 hours per week.

The effect of these schedules in those sections where night running is general will be to reduce the length of the regular night shift by not less than five hours per week in most cases, and in some cases by ten hours per week, the Institute points out. In addition, both on night and day shifts, extra running time outside of the regular shifts will be eliminated and in the comparatively few cases where the day shift now exceeds 55 hours there will be a reduction to not more than 55 hours.

What the Southern Mills are Doing

IT WAS RECENTLY reported that Reibach and Mandell, Inc., of New York, are planning enlarging the Brewton Silk Mills Corp., of Brewton, Ala. The program will include the installation of additional machinery.

The Thomaston (Ga.) Bleachery has added one three-roll 110-inch Perkins friction calender to be used in finishing glazed sheetings, etc. They have also added one five-roll straight calender, obtained from the Textile Finishing Machinery Company.

The new bleachery of Yates Bleachery Co., Flintstone, Ga., has recently been equipped with new machinery and is now completed and in operation. The addition increased the capacity of the plant 50 per cent. Additional finishing machinery will be installed later.

Bradley Mfg. Co., Columbus, Ga., is adding skein dyeing equipment so that it can also furnish skein dyed yarn put up on tops, cones or cops in addition to its raw stock dyed yarn.

It was recently reported that Tubize Artificial Silk Co. of America, Inc., and American Chatillon Corp. will build combined plant, announced to be built in Hopewell, Va., in Rome, Ga. The stockholders were to meet March 5th to ratify action of Board of Directors to consolidate the two organizations which will be known as Tubize Chatillon Corp.

The Oakleaf Mills, Langrange, Ga., recently purchased 26 over-edging machines which will be used to manufacture wiping cloths. The machines were secured from the Merrow Machine Co., Hartford, Conn.

Gaston County Dyeing Machine Co., Stanley, N. C., have a number of contracts, including the following: contract for 4 beam dyeing machine complete with 8 beam dryer and 160 dye beams, at the Southern Dyeing Co., Burlington, N. C.; contract with the Dixie Mercerizing Co., Chattanooga, Tenn., for 3 beam dyeing machines complete with dryer; contract with the Cross Cotton Mills, Marion, N. C., for 2 additional dryers for the dyehouse.

The Chatham Mfg. Co., Winston-Salem, N. C., was recently reported installing $200,000 worth of machinery which is to increase their production 20 per cent. Contracts have been awarded to John J. McCloskey, Phila.; Rudolph Jahrs, Inc., North Andover, Mass.; Whitin Machine Works, Whitinsville, Mass.; Woonsocket, R. I., Napping Machinery Co.; Crompton & Knowles Loom Works, Worcester, Mass.; Rodney Hunt Machine Co., Orange, Mass.

The Falls Mfg. Co., Granite Falls, N. C., have recently placed orders with Borne Scrymser Co., New York, for additional oil spraying equipment, to be installed by their agents, Herbert Hinckley, Inc., Charlotte, N. C.

The new addition to The Waldensian Weavers plant at Valdese, N. C., has been completed. The building will be used for office space and the finishing room.

Burlington (N. C.) Mills, Inc., have purchased 100 automatic Crompton & Knowles wide silk looms, which is to aid in furthering the program of machinery replacement, rearrangement and addition involving an expenditure of more than $200,000. Equipment has also been bought for a finishing department which will enable this concern to finish its own products. Woven draperies being the largest part of the output for this mill.

The Pelham (S. C.) Mills have made installation of oil spraying equipment furnished by Borne Scrymser Company, New York.

Southern Dyeing Co., Burlington, N. C., was recently reported planning an expansion program which will double the plant's capacity for rayon dyeing and treble the beam dyeing capacity. Beam dyeing machines and complementary yarn drying equipment have been purchased from the Gaston County Dyeing Machine Co., while the rayon dyeing equipment was purchased from the Giles Machinery Co. It was necessary for the addition to measure approximately 40 x 70 ft. to accommodate the new equipment.

Alfred Mills, Inc., manufacturers of fancy Jacquard and

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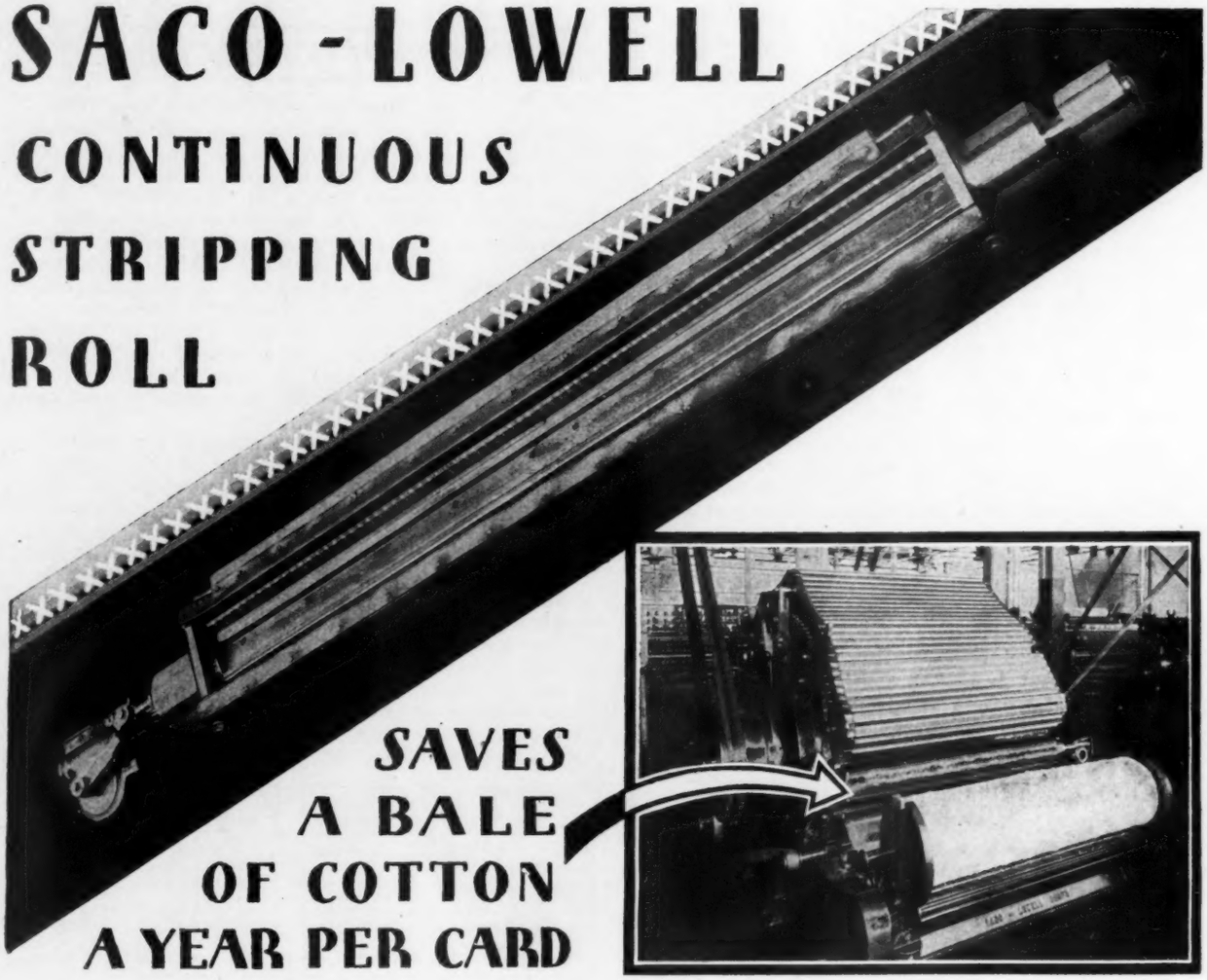

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DISREGARDING the advantages of sliver of better quality, increased production, and saving of labor made possible by the Saco-Lowell Continuous Card Stripper, the saving in cleaned stock alone warrants its immediate application.

In a recent survey it was found that the total amount of cylinder strips from each standard card was 15 ounces per day of ten hours. The mill is running night and day and accordingly the total cylinder strips for a day and night run is 30 ounces. They have 84 cards which means that they are producing 157 pounds of cylinder strips each working day, or a total of 47,100 pounds per year. The Saco-Lowell Continuous Stripper saves this cotton and delivers it into the sliver.

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dobby goods, are planning improvements to equipment of the Savona Mfg. Co., which they recently acquired.

The Clinchfield Mfg. Co., Marion, N. C., have let contract to Southeastern Construction Co. for mill remodeling.

Wade Mfg. Co., Wadesboro, N. C., is installing equipment for raw stock bleaching, including three closed kiers, purchased from the Columbus (Ga.) Truck & Supply Co.

The Haynes Mills, Avondale, N. C., recently completed their two story addition, in which will be installed carding and spinning equipment.

Deep River Mills, Inc., Randleman, N. C., have started an improvement program which will not be completed until about mid-summer. Dust suction equipment is being added in the finishing room, where a new napper has already been installed. Automatic looms are replacing the old looms. There will be between 200 and 300 new ones when the program is completed.

The Bahnson Co., of Winston-Salem, N. C., recently built a new conditioning room and installed new humidifying equipment for the Wadesboro (N. C.) Cotton Mills. This mill has also installed 11 additional cards, along with other machinery.

Hermitage Cotton Mills, Camden, S. C., have ordered 102 Draper looms to replace their old ones.

The Highland Cotton Mills, High Point, N. C., recently began installing machinery in their new two story brick structure, which adjoins one of their plants.

It has been announced that the handsome new plush mill for the manufacture of cotton velours has been completed by the Statesville (Ga.) Cotton Mills.

Fiske-Carter Construction Co. will install sewers in 37 residences at the Oakland Mills and in 73 of the residences of the Mollohon Mills, both mills being in Newberry, S. C., the cost being approximately $70,000. Grading and putting in coping will be done by Carolina Construction Co.

Piedmont (S. C.) Mfg. Co. were recently reported installing new equipment. Whitin Machine Works have been given order for new spinning frames to the extent of 15,600 spindles and considerable new drawing and roving machinery. The spinning frames will be wide gauge warp frames, fully equipped with Casablancas long draft attachments. Casablancas long draft attachments for 18,100 spindles on frames which will not be replaced have also been ordered.

Recent announcement stated that the Sewee Mfg. Co., Belton, S. C., is planning to erect a new building to take care of their increased production.

Manny-Reilly Co., of New York, is planning establishing women's rayon underwear plant in Bristol, Va.

It has been reported that contracts for the new addition to Klotz Silk Mfg. Co., Blackstone, Va., have been awarded and that work will start soon on remodeling and fitting up the building. The production is to be doubled.

The Morrell Mill of Va., Emporia, Va., manufacturers of tapestries and upholsteries, were reported to begin operation of the first unit about the first of March. General Electric motors, individual drive, will be used. R. B. Morrell, of Philadelphia, is president and Fred Taylor plant manager.

A group policy covering the lives of 869 workers of the Anderson Cotton Mills, of Anderson, S. C., for $897,400, was recently issued by the Prudential Insurance Company of America, according to an announcement from that company's home office at Newark, N. J. The policy is of the contributory type, the employees paying a part of the premiums and the employing company assuming the remainder of the expense. Each worker is insured for amounts based on the rank or position held and age.

Construction work has been started on the addition to Pickett Mill No. 2, formerly the Leak Mill, Rockingham, N. C. Price-Smith are the contractors, in charge of the building operations. It is reported that 100 looms and 3,400 spindles will be added, bringing the total to 600 looms and 18,000 spindles.

Cotton Comment by H. & B. Beer

New Orleans, February 15th, 1930.

THE COTTON MARKET experienced an important decline during the period under review, the price of Middling cotton in this market falling to 14.75 on February 7th, or to the lowest price level since April 26th, 1927, the record crop season of 1926-27. The decline was mainly attributed to the increasing use by foreign spinners of foreign growths, at the expense of the American product, and to Garside stating recently as regards American lint: "Present indications are that the consumption in the first half of this season, ending January 31, will be in the neighborhood of 7,100,000 bales, and that the consumption in the second half will run somewhat higher than this." For the first half of last season, Garside made the world's consumption of American lint cotton 7,619,000 bales.

It is possible, however, that the fear of the possibility of an overproduction this year, due to the good season in the ground and the belief that the severe winter may have destroyed many boll weevil, partly accounted for the drastic decline. Another depressing influence was the statement credited to a Federal Farm Board official to the effect that while the new cotton market agency would deal in cotton, it did not contemplate buying on a large scale or at any foolish price.

The recent decline in silver, now reported near the lowest level on record, the adoption of short time in Japan, talk of possible further short time in Manchester, small exports, small spinners takings, and the continuance of comparatively small sales daily at southern spot markets, were not without their depressing influence on the market.

ASSOCIATION OF COTTON TEXTILE MERCHANTS OF NEW YORK JANUARY STATISTICS.

Yards—	January 1930 5 weeks	December 1929 4 weeks	January 1929 5 weeks
Production	323,287,000	243,735,000	342,806,000
Sales	292,034,000	302,934,000	317,078,000
Shipments	331,481,000	214,148,000	345,354,000
Stocks	452,819,000	461,013,000	389,195,000
Unfilled orders	391,571,000	431,018,000	440,585,000

January sales of cotton goods 90.3 per cent of production, and shipments 102.5 per cent of production. Stocks at end of January decreased 1.8 per cent, and unfilled orders decreased 9.2 per cent.

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption, January, inc. linters	639,628	737,645
Consumption, 6 months, inc. linters	3,746,521	3,864,972
Mill stocks, Jan. 31st	1,830,096	1,768,165
Stocks in pub. stg. and whs., Jan. 31st	5,406,771	4,615,312
Stocks in mills, pub. stg. and whs., Jan. 31st	7,236,867	6,383,477
Active spindles during January	29,198,134	30,758,168

OTHER STATISTICS

American cotton— bales—	This season	Last season
In sight since August 1st (marketed)	13,288,491	13,339,977
Exports from U. S. Aug. 1st to Feb. 14th	5,233,838	5,960,511
Spinners takings Aug. 1st to Feb. 14th	9,248,000	10,107,000
World's visible supply	5,832,639	5,581,120

Compared with last year, the world's visible supply of other kinds is 2,720,000 bales against 2,170,000, and of all kinds 8,552,639 versus 7,751,120.

Statistics, as will be noted, were generally unfavorable, but since the price of cotton is at a comparatively low level, the market recovered smartly during the past week or so, Middling in New Orleans today quoted at 15.48 versus 14.75, the recent low level.

The late recovery in the market was attributed mainly to short covering, influenced by Tattersall's estimating this season's world's consumption of American lint cotton at 14,600,000 bales, by improvement in the domestic demand for cotton goods, and more cheerful trade advices of late from Manchester.

Regarding preparations for the next crop, the American Cotton Crop Service recently stated in part: "Preparation of the ground for the next cotton crop made some progress, but is generally behind. Over wide areas the soil is too wet to plow. Farmers have been slow in beginning spring

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Your job is textiles. The G.T.M. is experienced and able in your field. He has brought the amazingly economical Goodyear Endless Compass (Cord) Belt to your high-speed drives—a nearly stretchless belt *with a core of rugged cord*. He has specified Goodyear Air, Welding, Water and Steam Hose for the efficiency of your plants. He has guarded your power with Goodyear Packing. The G.T.M. knows mills and the problems of textile manufacturing. He is your man, ready for your job.

For full information on savings the G.T.M. can bring to your business, write to Goodyear, Akron, Ohio, or Los Angeles, California.

THE GREATEST NAME IN RUBBER

GOODYEAR

HOSE BELTING MOLDED GOODS PACKING

work, partly due to the weather and partly to the present price of cotton, and the tight financial situation. In the Southeast, there has been some tendency to await the outcome of the Federal seed fertilizer loan. The delay is not yet serious, but it has been our experience that late preparation detracts from the yield probabilities, and after February 15, begins to affect the acreage.

Recently the National Fertilizer Association was credited with reporting sales of fertilizer tags in the cotton states during January as showing an increase of 11.1 per cent over January of last year, and for two months, December and January, an increase of 5.8 per cent over the corresponding period of last season.

During the past week Washington advised: "Commenting on the boll weevil conditions, Carl Williams of the Federal Farm Board, stated: surveys do not indicate that the freeze has killed the boll weevil. Its early emergence may have been checked in the central belt, but in the east and west temperatures were not harmful. Mr. Williams said he did not know whether the cotton commodity advisory committee would recommend the establishment of a stabilization corporation. As yet no date has been set for the committee's first meeting."

New England Mill Situation

February 18th, 1930.

THE CONDITION of the New England textile industry has shown considerable improvement during the past month, incident to the better business in cotton textile centers generally as the spring season has advanced. Still volume runs considerably behind that of this period last year, and curtailments are the general rule among the mills of the East. Consumption of finished goods goes forward apace and in the New York market converters of cotton and rayon fabrics are enjoying a volume turnover, but neither this nor the large business in the hands of printers and finishers brings about the desired demand for further gray goods.

The key to this difficulty is found in the very general practice engaged in last November by many merchants following the financial debacle, of deferring commitments and refraining from placing further business. Datings were advanced to January and into February. Considerable quantities of goods accumulated, even though many mills cut their production sharply, and much of this supply was sold at prices below costs of manufacture. The recent break in cotton, which brought spot Middling upland to 15.35 cents early this month, rendered the condition still more difficult.

Recently, however, merchants have found that most of the deferments have been taken up and that accumulations have been considerably reduced. A few fine cloths have grown scarcer, and premiums have been paid for spot goods required for printing immediately. Prices of most of the staple all-cotton fabrics continue below the cost of restoration, but they pertain to lingering amounts of spots. The rayon warp cotton filled shantungs, corded, of slub yarns, or combining both features, along with some crepes, the rayon filled piques, and scattered rayon or silk filled Jacquards have been in the stronger position. Mills making quality goods of this description are sold up on them, but these are insufficient to materially aid industrial prosperity.

The Berkshire Fine Spinning Associates, who make great quantities of all-cotton fine goods in their mills through Massachusetts and Rhode Island, have reported satisfactory sales during the period covering their production during several of the weeks included. The position of all cotton goods, however, is one of about 70 per cent or less production, so that sales of the full out-turn would not compare very favorably with the yardages moving at this time last year. In consideration of this condition, however, it is necessary to remember that last spring's business followed upon a long period of shutdown due to strike in New Bedford, the East's principal fine goods center.

Other mergers have been talked of among Eastern mills of late, but nothing has publicly materialized thus far and doubt is expressed as to the outcome of negotiations. Whereas some efforts of New England mills to improve conditions by this method have been satisfactory, others have met with less success and on the basis of the success or lack of success of existing organizations further organization in a measure depends.

The Berkshire group, incidentally, declared its regular quarterly dividend during the period, $1.75 on preferred and $.75 on common stock, payable on March 1 to stock of record February 15.

The effort of Jerome A. Newman, New York financier, to bring about a 1,000,000-spindle fine goods consolidation met with a rebuff at the Taber Mill, New Bedford, the matter having been passed on in error to the stockholders who lined up against the proposition, although the matter did not come up for further action after being tabled some time previous by the directors.

The Taber mill, on the other hand, voted by a substantial majority to issue 4,000 shares of $100 par cumulative 7 per cent preferred stock convertible into common, share for share, and increasing capitalization from $1,600,000 to $2,000,000, the money to be used to pay off debts of the Corr mill, Taunton, of 64,600 spindles and 1,362 looms, which Taber has converted from a carded to a combed yarn mill. The corporation last year did a little better than break even, officials said.

Individual Mill Reports.

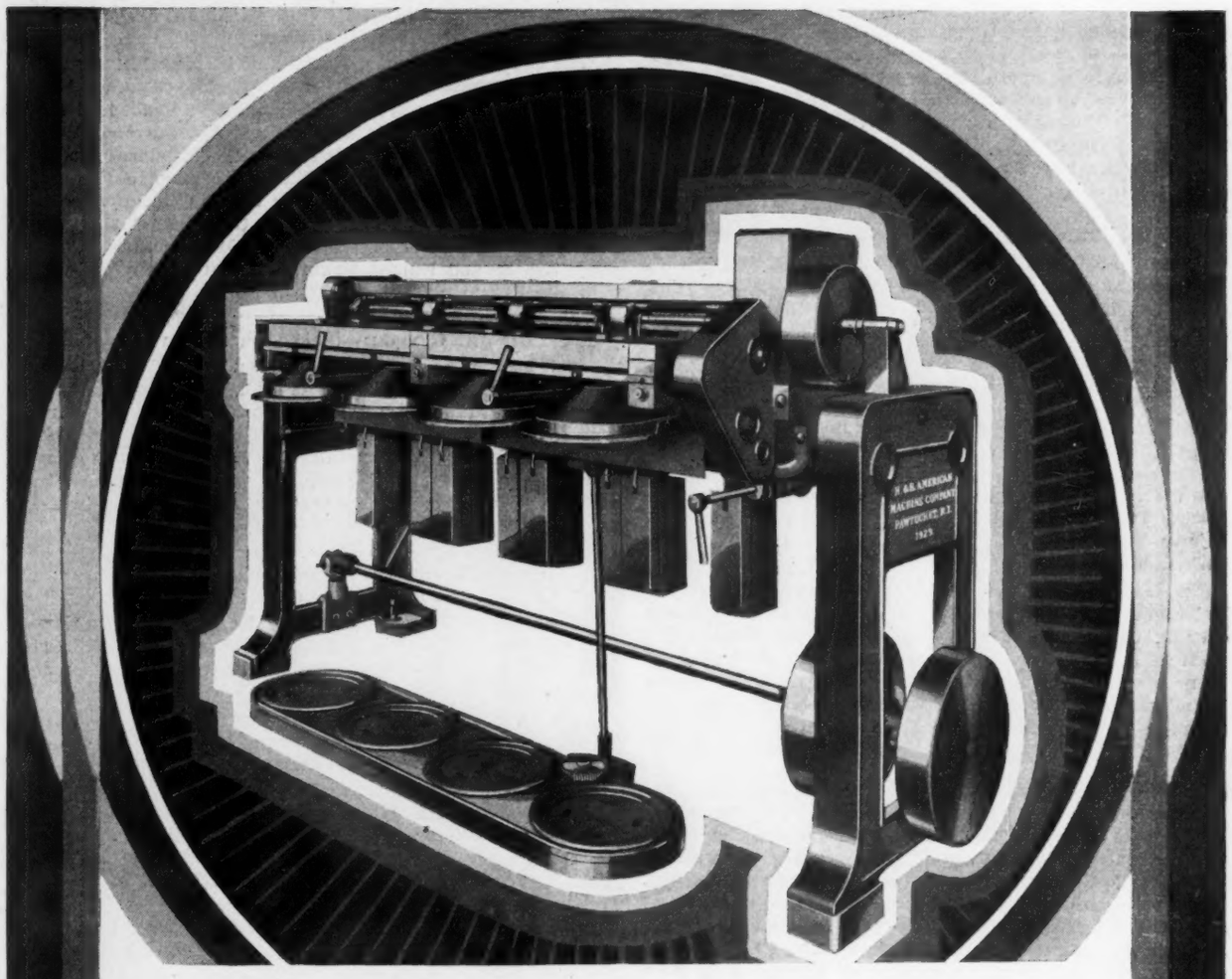
Gosnold Mills Corporation of New Bedford reported earnings of $157,436 for the six months ended December 31 after interest, taxes, and depreciation, according to the report issued at its annual meeting. This is equivalent after preferred dividends to $13.40 on each of the 9,900 shares of no par common outstanding. The stock advanced following declaration of the dividend. Gosnold Mills Corporation is the reorganized Gosnold Mills Company, but no statement from the company on the first six months of 1929 has been made.

The City Manufacturing Company of New Bedford is planning to revert to a yarn mill and to sell its 400-loom cloth mill in Taunton, according to confirmed reports recently made. During 1929 the Taunton unit lost $18,171, and the New Bedford plant $36,019 on its 59,064-spindle mill. The sale of the Taunton mill will, it is believed, improve City Mill stock and reversion to a yarn manufacturing basis will likewise improve conditions. Rumors were current that the Holmes Mill, also of New Bedford, was to close, but these were emphatically declined by Charles M. Holmes, its treasurer, and declared to have no basis.

The Dartmouth Mill during the period started its entire slasher equipment at capacity plus a night force, which is the first time in several months that the equipment has been so operated. Some other New Bedford mills by virtue of activity in the special fields have been able to operate on better schedules. And the New Bedford Rayon Company started off the year very auspiciously, according to its officials, and is doing a better business than they had expected.

Fall River reports from various mills were also rather irregular, with some in a good position and with others less fortunately situated. General conditions in Fall River are reported unsatisfactory, with only scattered instances of improvement. The Barnard Mill broke a little better than even in 1929, according to its annual report, but was able measurably to reduce liabilities and expended over $50,000 for new machinery, principally box looms and cards. The mill made 1,801,091 pounds of cloth in 288 days operation in 1929. The Massasoit Manufacturing Company at its annual meeting reported an earned surplus of $538,135 for the year. The Charlton Mills too presented a report of a net surplus of $750,000 as against $710,000 at the end of the previous year. The company paid $96,000 dividends besides increasing its surplus, charged $40,000 to depreciation, and expended slightly under $30,000 for new machinery. Total assets exceed those of the previous year by $29,352, figuring in goods in process and larger machinery account.

The Cornell Mills, on the other hand, were estimated to be losing including taxes $16,000 per quarter, according to



H & B DRAWING FRAMES WITH ELECTRIC STOP MOTION

The Drawing Frame is the most important machine employed in the cotton spinning trade for parallelizing the fibres and regularizing the slivers. To prevent the formation of irregularities in the sliver during the drawing process, it is most essential to use a positive, Quick-Acting Stop Motion.

The H & B Electric Stop Motion meets every requirement for speed, reliability, and durability, and has proved to be an outstanding development in textile machinery.

It is quicker acting, less complicated, requires no attention or adjustment, and makes less waste, all of which make for more economy and efficiency in the operation of H & B Drawing Frames.

Production figures, names of users, and descriptive bulletins, sent upon request.

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

Southern Office: 814 and 816 Atlanta Trust Co. Bldg., Atlanta, Ga.

BUILDERS OF COTTON PREPARATORY AND SPINNING MACHINERY

Robert Zuill, the treasurer, in urging liquidation at the earliest possible date. Directors of the mill have decided to make use of the authority voted them by stockholders in December to liquidate the property as soon as possible. Tax controversies continue to occupy some of the Fall River mills, with adjustments favorable to the Shove mills made on back taxes and with suits entered for recovery of $85,413 alleged over-tax by the Stafford Mills. The Laurel Lake Mills in Fall River fared better in 1929, with quick assets of $238,194, $69,197 less than a year ago, but balanced by reduced liabilities and an increase of $23,000 in plant value.

Officers of the Wampanoag Mills, also of Fall River, have been vacated and taken over by officers of the Flint Mills. A purchase was negotiated here, but the Wampanoag corporation continued pending stock adjustments, now taken over by the Flint board.

In Rhode Island and Connecticut mills were operating on a curtailed schedule, but still overproducing for the most part. Few developments were noted of an outstanding character, however. American Fabrics Company of Bridgeport, Connecticut, has entered on a period of expansion as a manufacturer of laces, trimmings, and woven labels. The Nyanza Mills have brought out some new type pajama suits through a styling department. These are knitted goods.

In the Rhode Island textile machinery industry, the United States Bobbin and Shuttle Co. reported total assets over $2,700,000 against over $4,000,000 at the close of the previous year, but the drop is reported due to an altered accounting policy. The textile machinery trade in Rhode Island has been slow of late, except on necessary accessories which have been selling in fair volume.

Amoskeag's Recuperation.

Of outstanding importance in Northern New England is the annual report of the Amoskeag Manufacturing Company, Manchester, N. H., with its net profit of upwards of $1,500,000 for 1929. In 1928 the Amoskeag lost $1,723,000. A $1 share dividend has been declared payable in three installments. During the past two years Amoskeag has done a very large business in yarns and has doubled the capacity of its rayon yarn plant to a point of leadership in New England. The mill has been able to accept cloth business on a very low basis on numerous occasions during the year, and has recently obtained further orders at prices that are difficult to duplicate elsewhere.

The Nashua Mills of Nashua, N. H., large blanket manufacturers, is running at 50 hours a week in all departments. Suncook Mills, fine cotton and rayon producers at Suncook, N. H., have been reported operating at 60 per cent of capacity. In the North Pownal, Vt., plant of the Greylock mills, owned by the Berkshire Associates, difficulties developed when a 56-hour week was put into effect and employees refused to put in the extra time. The mill was closed until employees should find the longer hours acceptable. Officials said the longer week was necessary to making the mill profitable. In Lowell, Mass., a movement to assess mill spindles at not more than the average for the state of Massachusetts was furthered in recommendation of a special committee appointed by the mayor of that city. The mills at Lawrence, Mass., have been somewhat more active, including the Pacific plant there.

Tax controversies continue to be noted, the Lowell matter above noted being added to by the declaration of Frederick A. Flather of the Booth Mills there and treasurer of the Lowell Industrial Development Company, which recently acquired the Lowell Pepperell plant, that a tax cut was essential. Newmarket Manufacturing Company of Newmarket, N. H., has also petitioned the local government for abatement of taxes and has met with refusal. The mills plan to take the action to the New Hampshire supreme court.

The Vogt Manufacturing Corporation has acquired the plant and business of the Waterloo Textile Corporation, Waterloo, N. Y., manufacturers of high finish textiles and automobile upholstery fabrics.

Square D Company, Detroit, Michigan, Adopts New Calendar.

The Square D Company, Detroit, Mich., manufacturers of electrical control equipment, with factories also at Milwaukee, Wisconsin, and Peru, Indiana, have announced the adoption, for all accounts, salaries and internal records of the company, of the new thirteen-period calendar. Among the other leading companies which have adopted this for internal operations are the Eastman Kodak Company, Sears, Roebuck and Company, Fuller Brush Company, C. G. Conn, Limited, Loew's, Incorporated, Hickok Manufacturing Company, Graton and Knight Manufacturing Company and Lukens Steel Company.

The Permutit Company Makes Change in Personel.

At a meeting of the Board of directors of The Permutit Company, held Monday, December 30th, H. Kriegsheim, who has been president of the company for the past seven years, was appointed chairman of the board, and W. Spencer Robertson, formerly secretary of the American Locomotive Company, was appointed president of the company. Mr. Kriegsheim will continue to take an active interest in the management of the company.

Dupont Rayon Co. Sales Offices Moved from Old Hickory to Chattanooga.

The Old Hickory sales offices of the Dupont Rayon Company have been moved to Chattanooga, Tenn., at 609-610-611 Provident Bldg. Frederick F. Hubach is district sales manager.

Barrett-Cravens Company Merges with Walker Vehicle Co.

As a recent development of definite interest and importance to the materials handling equipment field is the linking together, in ownership and management, Barrett-Cravens Company with Walker Vehicle Company, Chicago, and Automatic Transportation Company, Inc., Buffalo.

Charles Bond Company Issues New Booklet.

Charles Bond Co., 617-619 Arch St., Philadelphia, Pa., recently published a very instructive and interesting little booklet, in which they state it is their aim to describe as clearly and concisely as possible their complete line of leather products.

New pH Apparatus at Clemson.

In connection with the research upon the applications of pH control in the various branches of the textile and related industries, the Clemson College, S. C., Textile School has just installed a Cambridge Instrument Company glass-cell hydrogen ion concentration determination apparatus in the division of chemistry, rayon and dyeing. Any one interested in this type of apparatus is invited to see it at Clemson, by appointment.

Bristol Issues New Catalogue.

The Bristol Company, Waterbury, Conn., have issued Catalog No. 1000, giving information pertaining to their recording pressure and vacuum gauges. Detailed technical descriptions of the various equipment manufactured by the company, together with other technical information concerning charts, etc., is contained in the catalog.

Pontacyl Fast Black NG.

E. I. du Pont de Nemours & Co., Inc. recently placed on the market a new dyestuff known as Pontacyl Fast Black NG, which they state is an acid black, slightly redder in shade than Pontacyl Blue Black SX, and that it produces a full intense black which is faster to rubbing or crocking than the ordinary acid blue either alone or shaded with orange or red and yellow and that for this reason it is particularly valuable for application on fur hat felts, Bolivias, broadcloths and similar materials where this characteristic is of utmost importance.

HALTON'S JACQUARDS

Halton's Cylinder Bearings and Adjustments can't be improved... or we'd have improved them. Fifty years of actual use have shown them to be the most practical under average conditions. Perfect adjustment vertically and laterally can be made in a few seconds.

But they're an exception. The design of every other part of the machine, during the past 50 years, has been changed for the better ... for simplification and performance. Why not let our new catalogue show the details?

THOMAS HALTON'S SONS,
"C" AND CLEARFIELD, PHILADELPHIA.

SELLING AGENTS

H. A. FORBES, PATERSON, N. J.
THOMAS S. CAPPER, INC., CHARLOTTE, N. C.
FRED H. WHITE, CHARLOTTE, N. C.

New Textile Equipment and Publications

NEW LIFT TRUCK.

Barrett-Cravens Co., 1328 West Monroe St., Chicago, Ill., announce a new lift-truck, to be known as the Red Junior lift-truck. This new truck, it is stated, will lift the load with a single stroke of the handle, and from an angle. It is a 2,500-pound capacity light duty lift-truck, available in more than

120 standard stock models, the announcement states. It includes the spring handle hold-up, to prevent the handling from falling to the floor, at the same time taking the weight of the handle out of the trucker's hand, it is pointed out. It has a roller bearing latch catch, and an automatic engaging latch for lifting loads. Hyatt roller bearings and Alemite lubrication are standard features. A photograph illustrating the truck is shown herewith.

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DRYING SILK AND RAYON PIECE GOODS.

Philadelphia Drying Machinery Co., 3351 Stokley St., Philadelphia, Pa., have issued an attractive booklet describing "Hurricane" dryers for drying silk and rayon piece goods, etc. The cover is a pattern reproduced from a rayon georgette, one of the classes of goods dried on this type of automatic loop dryer.

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BULLETINS ON DUPONT DYESTUFFS.

E. I. duPont de Nemours & Co., Inc., dyestuffs sales division, Wilmington, Del., recently issued four interesting pamphlets giving the properties and dyeing instructions and showing samples of yarn dyed with the following acid color dyestuffs: Du Pont Alizarine Blue Sky; Du Pont Anthraquinone Violet R; Du Pont Alizarine Green CG Extra; and Pontacyl Yellow G.

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OSWALD LEVER BULLETIN.

Oswald Lever Co., Inc., 11th and Cambria Sts., Philadelphia, Pa., have recently issued several bulletins with regard to their various products. One describes their pressure drum spooler No. 8; and others their No. 20 and No. 40 winders for cops and bobbins; and another their No. 50 machine for backwinding on wood or cardboard bobbins. Another pamphlet shows the Lever over-end creel for bottle bobbins.

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BOOKLET ON JENKINS VALVES.

Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C., distributors of Jenkins Brothers iron body valves, have issued a pamphlet descriptive of this line of valves, comprising globe, angle, Y, gate and check valves, in various patterns for different pressures.

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BULLETIN ON HIGH SPEED WINDING AND WARPING.

Universal Winding Co., Providence, R. I., have recently issued an attractive booklet, well illustrated, describing the installation of high speed winding and high speed warping, with magazine cone creels, at the Pepperell Manufacturing Company plant at Biddeford, Maine. A description of the process, which replaces the old style spooling and slow speed warping, is given in the book, together with photographs of details of the process and the installation at Pepperell.

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NEW HINGE PINS ON BELT LACING.

Flexible Steel Lacing Co., 4607 Lexington St., Chicago, Ill., announce the supplying of new metallic hinge pins on the three smallest sizes of Alligator steel belt lacing, to replace rawhide pins. One size uses a sectional rocker hinge pin, while the two others have a corrugated wire hinge pin.

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NYANZA MILLS STYLE BULLETIN.

A style bulletin, the first of a series known as Nyanza Notes, has been issued by Edith M. Barrett, stylist for the Nyanza Mills, Woonsocket, R. I. The bulletin shows, in illustrations, two of the latest designed models, one of a very attractive low-cut, one-piece undergarment; the other a three-in-one sports undergarment—made entirely of Nyon yarn knit fabric with bodice-top, narrow shoulder straps, and full short panties similar to the running trunk type.

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SLITTING AND ROLL-WINDING MACHINERY.

Camachine Type 10 Model 10, is the title given to a circular recently issued by the Cameron Machine Co., 61 Poplar St., Brooklyn, N. Y., which gives some interesting information on slitting and roll-winding.

—o—

SYNCHRONOUS MOTORS.

General Electric Co., Schenectady, N. Y., have issued an attractive 85-page booklet entitled "Synchronous Motors," which gives interesting and complete information on the characteristics and features of the synchronous motor, along with the industrial applications of the motor. The book is well illustrated with examples.

—o—

STEEL BASES FOR MOTOR GENERATOR SETS.

Reliance Electric & Engineering Co., Ivanhoe Road, Cleveland, Ohio, announce the adoption of bases constructed from heavy steel plate, electrically welded, for motor-generator sets of their manufacture. The tops and ends of these welded bases are completely closed to prevent collection of dirt, it is announced.

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TEXROPE DRIVES.

The applications of Texrope drives in various industries are illustrated in a booklet entitled, "Texrope Drives for Every Industry," recently issued by the Allis-Chalmers Mfg. Co., Milwaukee, Wisconsin. The booklet contains many illustrations showing the drive applied to different types of machines. The booklet states that over 70,000 Texrope drives have been put in service during the past four years, and that this type of transmission increased 48 per cent in use in 1929 over 1928.

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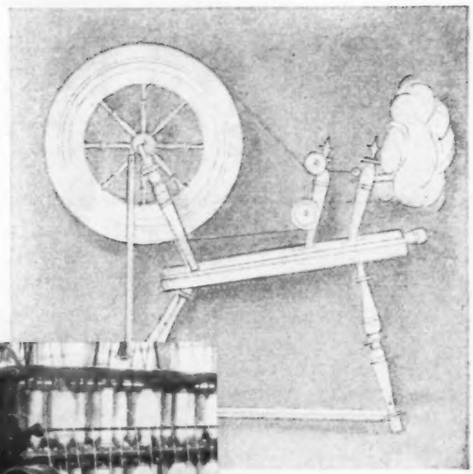
NEW MORSE CHAIN BOOK.

Morse Chain Co., Ithaca, N. Y., have issued Bulletin No. 37, in which the subject of flexible couplings is discussed. The reading matter starts with the development of the need for flexibility in modern scientific power transmission, and takes up successively such subjects as savings effected on bearings and machinery, lowering maintenance costs, etc. Complete data is given on the proper way to select couplings, their ratings, dimensions, etc.



TEXACO SPINDLE OIL

MAKES A FIFTEEN PER CENT POWER SAVING

It was demonstrated by engineers of The Texas Company in the spinning room of a large southern cotton mill. A test was arranged. One of the spinning frames, fitted with a 7½ h.p. motor and recording watt-meter, was operated for periods of three weeks, first with the oil at that time in use, and then with Texaco Spindle Oil. The actual power consumed was less by approximately 15 per cent.

Many tests were made in other large mills and in every case Texaco Spindle Oil effected substantial savings in power.

These are examples of what Texaco Lubrication is accomplishing in a large percentage of the country's plants today.

There is a specialized Texaco Lubricant for every purpose—and experienced Texaco Lubrication Engineers are always glad to cooperate. Texaco Lubrication saves money—in power and maintenance. You can depend on it. Write The Texas Company.

TEXACO

THE TEXAS COMPANY,
17 Battery Place, New York City
Offices in Principal Cities

TEXACO LUBRICANTS

NEWS ITEMS *with a Textile Slant*

BUTTERWORTH ANNOUNCES CHANGES.

H. W. Butterworth & Sons Co., Philadelphia, Pa., manufacturers of textile finishing machinery, have announced that the executive and sales offices of the Klauder Weldon Division of the Butterworth organization, formerly located at Bethayres, Pa., has been consolidated with the Philadelphia sales department. The Bethayres plant is now known as Plant Number Two—H. W. Butterworth & Sons Co., instead of the Klauder Weldon dyeing machine division.

This company recently was granted a license for the making of Meehanite castings, by the Meehanite Metal Corporation, Chattanooga, Tenn. Butterworth plans to make these castings for the trade from an ounce to ten thousand pounds, it is announced. Among the features of this metal as pointed out are its ability to withstand wear, erosion and corrosion; its high tensile strength, up to 70,000 pounds per square inch; and its faculty for taking a high polish. It is further stated that while this metal machines like ordinary gray iron castings, it is said to be many times as tough and much harder.

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NEW ALLIS-CHALMERS SALES OFFICE.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., announce the establishment of a sales office in Chattanooga, Tenn., 633-634 Tennessee Electric Power Building, which will operate as a branch of the Atlanta district office under the direction of Berrien Moore, district manager. At the Chattanooga office are D. S. Kerr, representative, and A. I. Richardson, sales engineer. William Parker was recently placed in charge of the Charlotte office of the company.

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LINK-BELT ANNOUNCEMENT.

Link-Belt Co., 910 South Michigan Ave., Chicago, Ill., recently announced the inauguration of a plan for carrying complete roller chain drive stocks at various distribution points throughout the country. The company recently opened a branch office, as Link-Belt, Ltd., at Standard Bank Building, 510 West Hastings St., Vancouver, B. C., Canada. Frank B. Wetherill is in charge.

DURENE APPOINTS PUBLICITY MANAGER.

E. L. Starr, newly appointed director of the Durene Association of America, has announced the appointment, as Durene publicity manager, of Miss Emma Lou Fetta, formerly public relations counsel of the Rayon Institute of America, Inc. Miss Fetta will organize and conduct the educational editorial work of the association.

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TRIBUTE TO NATIONAL ADHESIVES PRESIDENT

At a recent directors' meeting of the National Adhesives Corporation, 820 Greenwich St., New York City, the president, A. Alexander, was presented by his associates with a bronze tablet, paying tribute to him for "the sagacity, fidelity and inspiration of his leadership during the year 1929."

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CIBA COMPANY MOVES OFFICES.

Ciba Co., Inc., recently announced the location of its general offices, laboratories and warehouse at Greenwich and Morton Sts., New York City.

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KAUMAGRAPH OPENS BRITISH FACTORY.

Kaumagraph Co., 200 Varick St., New York City, announce the formation of British Kaumagraph Transfers, Ltd., 14 Lloyd's House, Lloyd's St., Manchester, England. A completely equipped factory is in operation at this address, producing Kaumagraph transfers for that country.

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NEW CORK ROLL MANUFACTURERS.

It was recently announced that the Carolina Cork Roll Co., Nicholson Bldg,. Charlotte, N. C., has been organized for the manufacture of cork roller coverings for textile mills. L. W. Cuddy, L. S. Hereford, and I. S. McManus are among those interested.

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BUY BIRMINGHAM PLANT.

Chicago Bridge & Iron Co., Chicago, Ill., manufacturers of steel tanks and steel plate work, have purchased The Reeves Brothers Company plant at Birmingham, Ala. This plant, located on a 40-acre tract, has a capacity of 4,000 tons a month, and will be used to fabricate steel for erection at southern points and shipment to the Pacific coast by water, and as additional facilities for handling export work, it is announced.

NEW ELEVATOR DRIVE.

H. W. Caldwell & Son Co., 2410 West 18th St., Chicago, Ill., recently published Book No. 1086, devoted to the description of a new drive for elevators, illustrating installations.

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Paul Lieberknecht, technical director of the Machine Factory Einsiedel, at Einsiedel, Germany, manufacturers of the Einsiedel-Reiner high speed full-fashioned hosiery machines, recently spent a few weeks in this country, in connection with Robert Reiner, Incorporated, the American representatives of this company. Mr. Lieberknecht visited this country for the purpose of securing orders and to visit the mills in which Einsiedel machines had been installed. The production at the Einsiedel factory has been trebled within the past year. Mr. Lieberknecht was the constructor of the high speed Lieberknecht manufactured Hohenstein; his father having sold the Hohenstein factory to Schubert & Salzer several years ago. In the meantime, Mr. Lieberknecht has made many changes and improvements embodied in the new Einsiedel-Reiner machines. Mr. Lieberknecht returned to Germany via France and Spain in connection with orders there for 48 and 51 gauge machines.

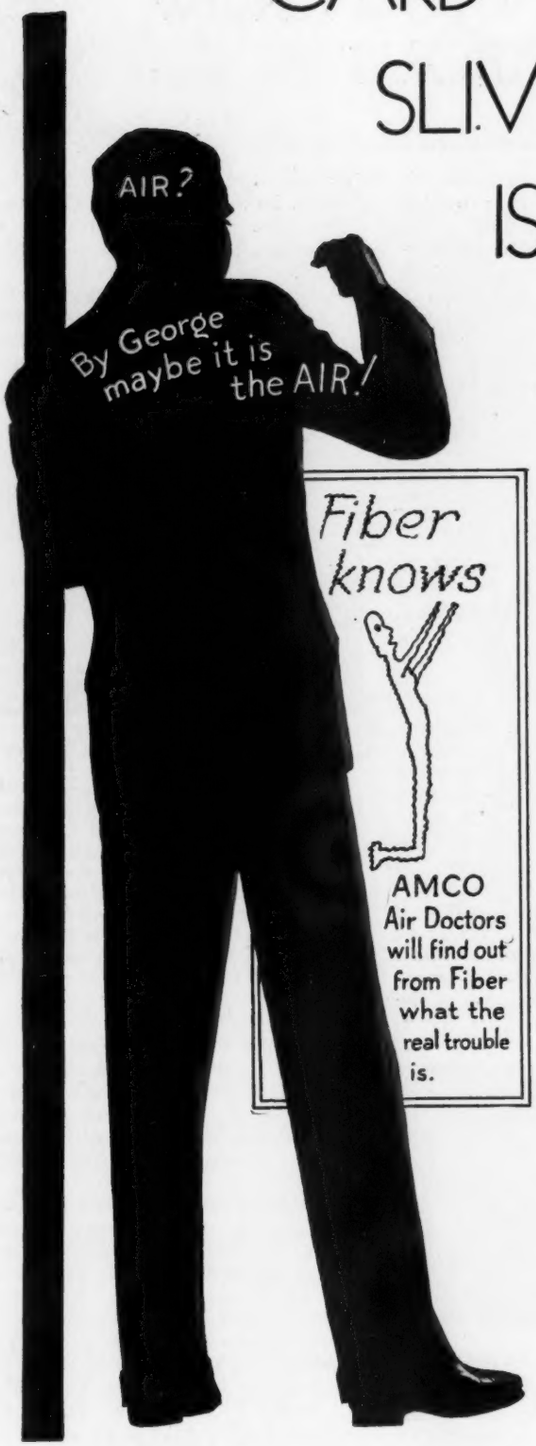
J. R. Proffitt, who for the past several years has been manager of sales promotion of the Mode-Modeled division of Westcott Hosiery Mills, of Dalton, Ga., has been appointed director of advertising of the Fabrimode costume hosiery division of Westcott Hosiery Mills and will have under his direction the advertising and sales promotion of all style groups of Fabrimode costume hosiery both in this country and abroad.

George L. Moore has become associated with The Kendall Company, Boston, Mass., divisions of which include the Kendall cotton mills in the South. In recent years he has specialized in analysis and interpretation of economic and business trends. Among his studies of distribution, production, and management for The Sherman Corporation, industrial engineers, include "An Analysis of the Causes of Declining Profit Margins in Manufacturing."

E. A. Feimster, a graduate of the Textile School of North Carolina State College, has been promoted from overseer of dyeing to assistant superintendent of the Eagle & Phenix Mills, Columbus, Ga.

A. H. Mason was recently promoted to the position of superintendent of preparation and weaving department at the National Weaving Company, Inc., Lowell, N. C.

CARD SLIVER IS NOW OKAY



A LOUISIANA mill making coarse materials and having a reputation for their fabric running evenly in weight and high in quality for this kind of goods, believed that the only way they could keep their cloth weights right was by constantly checking the card sliver weights and not permitting any to leave the card room if outside quite narrow limits.

As they were using a short staple cotton of a comparatively low grade, and the card room was not humidified, the card sliver weights ran very unevenly and much sliver was not used. Two men did nothing but weigh sliver. A fixer devoted most of his time to changing gears on the cards.

The owner of the mill was urged to install humidifiers in his card room to increase production and reduce invisible waste.

To his great surprise, the weights ran so evenly that the two men could be removed from the sliver weighing job, which is now done by the fixer. The quality of the sliver has been improved, the production increased, and the invisible waste greatly decreased.

Join The AMCO AIR-PLAIN Tours

5,000 mill men are chuckling over the breezy style of "Amco Air-Plain Tours Through Many Mills." Not a dry, technical treatise but interesting conversations that take you from mill to mill by airplane and tell about practical first hand experiences under the guidance of James W. Cox, Jr., consulting textile engineer.

Join these Air-Plain Tours today—one each month—through thrilling textile troubles in many mills from Maine to Mississippi. It will be a pleasure to have you as our guest on each of these tours. Write us today.

This newly designed Amco Humidity Control automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

AMERICAN MOISTENING CO.

Humidifying Devices

Air Doctors Since 1888

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312 West Exchange Street,
Providence, R. I.

CANADIAN AGENTS
Ross Whitehead & Co., Ltd.
1111 Beaver Hall Hill
Montreal, P. Q., Canada

SALES OFFICES
Boston, Mass. Atlanta, Ga.
Charlotte, N. C. Greenville, S. C.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

I. B. Morris, for more than twenty years superintendent of the Langdale Mill, West Point Mfg. Co., at Langdale, Ala., died suddenly, on February 2nd, of apoplexy, at his home in Langdale. Mr. Morris was 75 years of age.

Erwin Lehmann, for the past several years assistant superintendent of the Dixie Cotton Mills, LaGrange, Ga., has been made superintendent of the Langdale Mill, succeeding the late Mr. Morris.

J. E. Butterworth J. H. Zahn

J. E. Butterworth, vice-president of H. W. Butterworth & Sons Co., who for the past several years has been located at the Charlotte (N. C.) office of the company, has transferred to the home office in Philadelphia, where he is in charge of all sales. J. Hill Zahn, has been promoted to manager of the Charoltte office.

W. J. Brennan, who for 15 years was overseer of spinning at the Lorraine Mfg. Co., Westerly, R. I., branch, was recently made night overseer of spinning at the Warwick Mills, West Warwick, R. I.

M. F. Corin, who for fourteen years has been Philadelphia district sales manager for the Permutit Company, manufacturers of water treating equipment, has been appointed general sales manager. He will have supervision over 19 branch sales offices throughout the United States, and numerous sales agencies in foreign countries.

L. A. McAllister was recently promoted to the position of overseer of weaving at the National Weaving Company, at Lowell, N. C.

Fred M. Kimball, advisory manager of the motor division of the industrial department of the General Electric Company, died February 5th in Lynn, Massachusetts. Mr. Kimball had seen many years of service with General Electric and was well known throughout the motor industry. He had been ill for some time.

C. S. Martin recently resigned his position as night overseer of the Montala Mfg. Co., Montgomery, Ala., to accept a position with the Martha Mill, division of the B. F. Goodrich Rubber Co., Thomaston, Ga.

Samuel Windle, of Three Rivers, Mass., is now night overseer of spooling and warping at the Warwick Mills, West Warwick, R. I.

Joe Wilson was recently made overseer of spinning at the Chesnee Mills, Chesnee, S. C.

J. L. Jewel was promoted recently from overseer of spinning to superintendent of the Chesnee Mills, Chesnee, S. C.

C. H. West, president, and **F. D. Webster**, superintendent, of the West Knitting Corporation, Wadesboro, N. C., recently sold their interest in the company and tendered their resignations. At a stockholders' meeting L. D. Rivers, T. C. Coxe, H. B. Allen, W. H. Liles, T. V. Hardison, L. D. Robinson, J. D. Horne, J. A. Hardison and F. M. Hightower were elected directors and these in turn elected L. D. Rivers, president; T. C. Coxe, vice-president; and T. J. Covington, secretary and treasurer. It was announced that a superintendent would be employed shortly.

B. C. Barton is now overseer of weaving at the Humboldt Mills, Humboldt, Tenn., having been transferred from a similar position at the Shelbyville Mills, Shelbyville, Tenn.

W. C. Dodson R. D. Howerton

W. C. Dodson, for several years southern representative of Smith, Drum & Co., has been promoted to a position at the main office in Philadelphia. Robert D. Howerton, for the past few years connected with Celanese Corporation of America, will become southern representation for Smith Drum, who have opened a new southern branch office in the Johnston Building, Charlotte, N. C.

Henry Stokes recently resigned his position at the Dunean Mills, Greenville, S. C., to accept a position with Celanese Corporation of America. He will be attached to the Charlotte office. Mr. Stokes is a graduate of North Carolina State College Textile School.

D. C. Jones has resigned as superintendent of the Chesnee Mills, Chesnee, S. C., to become superintendent of the Judson Mills, Greenville, S. C., with which he had previously been connected.

McQ. Auld J. M. Shelton

J. M. Shelton and McQueen Auld, who have been associated with Robert & Co., Inc., architects and engineers, Atlanta, Ga., since the formation of the company, were recently made vice-presidents of the organization. Both are graduates of the Georgia School of Technology. L. W. Robert, Jr., is president of the company, and Cherry L. Emerson is vice-president and chief engineer.

H. B. Le Feaux has resigned his position with the Morganton Full-Fashioned Hosiery Company, Morganton, N. C., and is now assistant superintendent of the knitting room at the Arrowhead Fashion Mills, Rossville, Ga.

Charles F. Burney has announced the opening of headquarters in the Santa Fe Building, Dallas, Texas, where he will maintain southwestern headquarters for a number of textile concerns. He will represent Iselin-Jefferson Company of New York; Lane Cotton Mills, New Orleans; Haslin Mills, New York; Fred S. Bennett, Inc., New York; and Goldberg-Astor Company, New York, in connection with the sale of their products in Texas, Oklahoma, Mississippi, New Mexico, Arkansas and Tennessee. Mr. Burney is a well known figure in the textile industry, having been graduated a number of years ago from the Georgia School of Technology, and since having been connected with some of the well known commission houses and southern cotton mills.

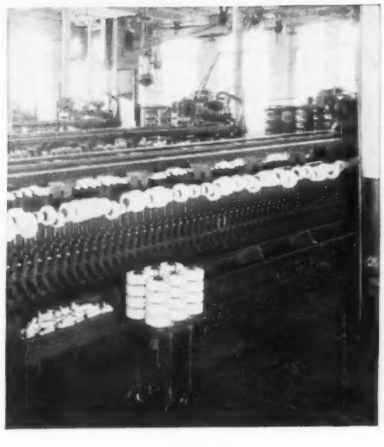
"EVERY KNOT A WEAVER'S KNOT"

WARE SHOALS MFG. CO.

WARE SHOALS, S. C.

Satisfied Users of
BARBER-COLMAN MACHINES

Among the rolling hills where three counties meet—at Ware Shoals on the Saluda river—is the mill of the Ware Shoals Manufacturing Co. They are one more on our long and growing list of Satisfied Users. Four of our Automatic Spoolers and three of our High Speed Warpers are to be found in their well-kept mill.



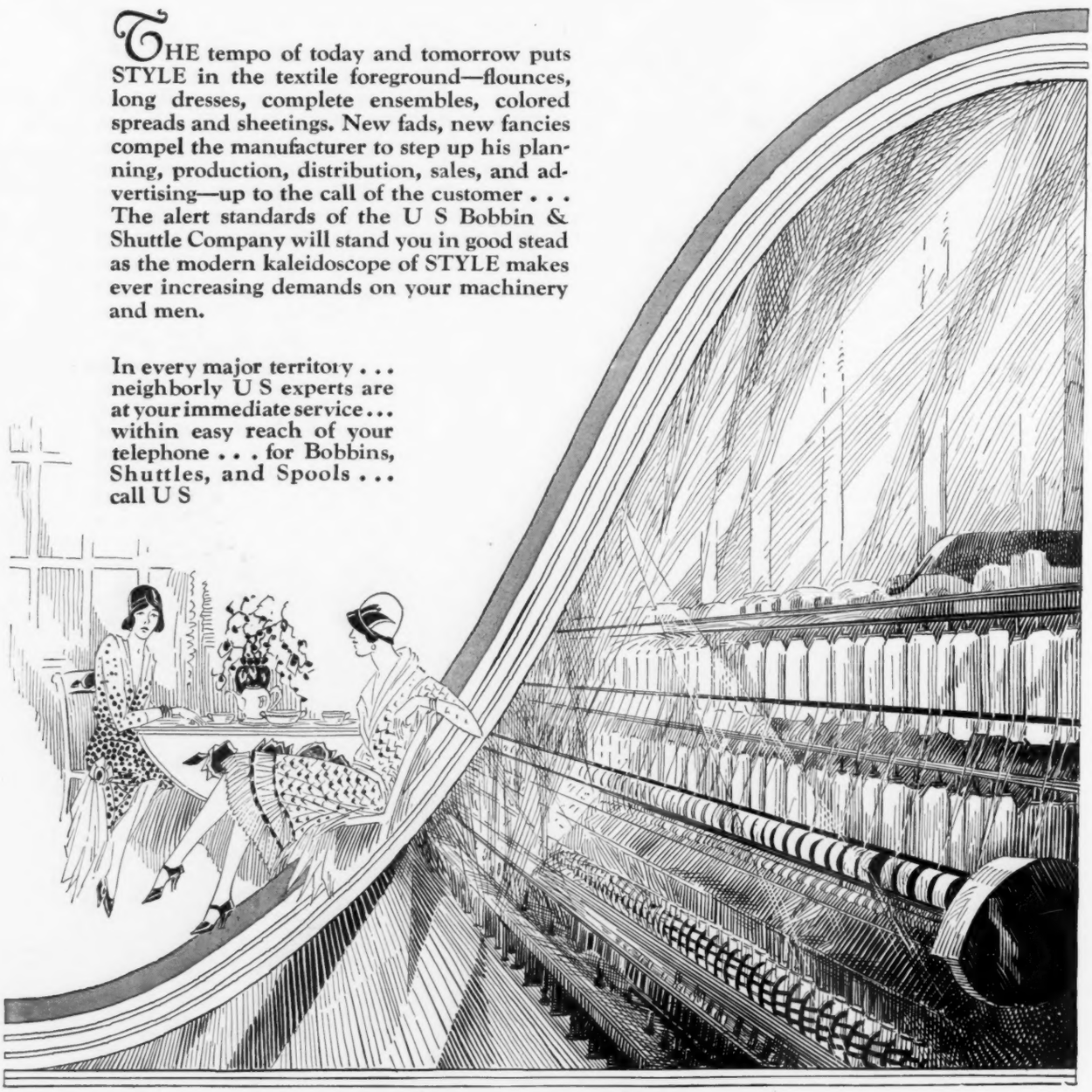
BARBER-COLMAN COMPANY
General Offices and Plant
ROCKFORD, ILLINOIS

GREENVILLE, S. C. FRAMINGHAM, MASS.

THE NEW STYLE

THE tempo of today and tomorrow puts STYLE in the textile foreground—flounces, long dresses, complete ensembles, colored spreads and sheetings. New fads, new fancies compel the manufacturer to step up his planning, production, distribution, sales, and advertising—up to the call of the customer . . . The alert standards of the U S Bobbin & Shuttle Company will stand you in good stead as the modern kaleidoscope of STYLE makes ever increasing demands on your machinery and men.

In every major territory . . . neighborly U S experts are at your immediate service . . . within easy reach of your telephone . . . for Bobbins, Shuttles, and Spools . . . call U S

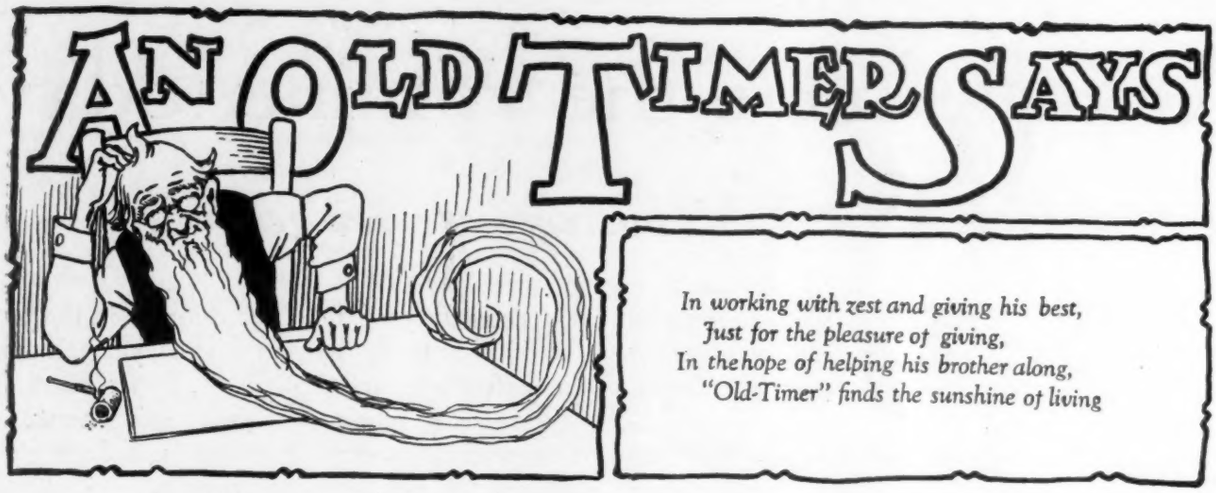


Founded in 1857

U S BOBBIN & SHUTTLE COMPANY

MANCHESTER, N.H.
EASTERN DIVISION
MANCHESTER, N.H. ~ GOFFSTOWN, N.H.
LAWRENCE, MASS.
WILLOUGHBY, VT. ~ PHILADELPHIA, PA.

MONTICELLO, GA.
JORDAN DIVISION
GREENVILLE, S. C.
MONTICELLO, GA. DUBLIN, GA.
JOHNSON CITY, TENN.


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living

Some Random Thoughts

HERE OLD-TIMER airs the family wash a little, but we are letting him get by with it this time. After doing this, he launches into a discussion of some subjects that will interest and help you and we know you will want to read these random thoughts. It is possible they will be continued in a subsequent issue—that is, if you would like to have us do so. How about it?—THE EDITOR.

THE EDITOR: *Get busy, there,* OLD-TIMER, *and give us your copy for this month. The printer can't wait, you know, any more than you can cause the 20th of the month to wait. . . Say! Wake Up! Don't you hear me talking to you?*

Howzat? You say you are talking to me?

Sure I am! Who did you think I was talking to?

Well, you talk so confounded much, it gets to where it isn't interesting.

Never mind the sarcasm, now, OLD-TIMER. *I say get busy and get out that copy, and when I say 'copy,' you know I'm not fooling.*

Oh, have a heart, Bob (he's the Editor). I just don't feel like working tonight.

Don't feel like working, eh! And I suppose you think that I don't work when I don't feel like it. And how about the many overseers and superintendents who are going to turn to the OLD-TIMER *page when* COTTON *comes to them; I say, do you suppose they stay away from the mill when they don't feel like working? Wake up, I say! Don't you sit there and nod while I'm talking!*

Oh! Are you talking? . . . Excuse me, Bob. Got any smoking tobacco? I'm out.

Will you start on that copy at once, or . . . . Well, remember you got fired once.

Hold your horses, young man. My mind just hasn't got started yet.

Mind! So you claim to have a mind. Well, it must be out of gas, or something.

No, not that, Bob. But seriously, I think there are one or two cylinders skipping, and it doesn't seem to want to run very smoothly. Seems to want to jump about, so to speak. Just ramble from one thought to another.

Well, for goodness sake, make a start. Let it ramble. Say something!

All right, here goes. Let's *call* it

Random Thoughts.

Work and Perseverance.

Ambition and Character.

Knowledge and Loyalty.

Equal parts well mixed with every day life and backed by a bull-dog tenacity will inevitably produce that much-sought for thing, Success.

How's that, Bob?

Oh, I remember, OLD-TIMER. *That is the kind of dope you poured into Jim for several years while you were working so hard to get him promoted. That brings the thought to my mind,* OLD-TIMER, *Jim is certainly doing fine, isn't he? Remember how you got him to see what Character and Perseverance really mean. How about telling us about that again tonight?*

Not on your tin-type, you lazy rascal. Tell your readers to refer back to their back numbers of COTTON, which they should have filed away with an index of all the articles which appealed to them at the time they read them.

Let me talk for a little while now about

Opportunity

So many overseers and superintendents can't see that Old Man Opportunity is all around them every day. Opportunity is not that mysterious something which comes only once in a life time, but it is with us all the time, if we could only realize it. *A man never knows what he can accomplish until he tries.*

Do you think for a moment, brother, that your job is being run the very best you can run it? If you do, wake up; get off in a corner by yourself and begin to *think.*

Try to find a way to get that cost down some more. Competition is going to make you do it anyway.

CREPES have the volume today

How much of this business are you getting?

THE "hand" of a crepe is vital in the present fashions. Mills that fail to study the changed fabric needs will meet with serious sales resistance.

To produce a cloth correct in the four cutting requirements listed below, use du Pont Super Extra yarn. Du Pont, pioneer in the production of many-filament rayons, has achieved a perfectly balanced yarn . . . Super Extra. It produces a fabric with a supple "hand," a better cover, a drape both ways, a deep glow that seems to grow from within.

Because it is clean, du Pont Super Extra yarn is more economical to run, too. A short test will prove it.

1. Tightly fitted sleeves require fabrics that won't pull out at the seams. (Because of its strength and softness, du Pont Super Extra Yarn will make a fabric firm, yet supple.)

2. For gently bloused bodices, wiry textures are impossible. (Du Pont Super Extra produces a fabric with a soft "hand.")

3. Only a fabric that drapes both ways can be cut on these circular lines. (The balance of du Pont Super Extra makes such a fabric possible.)

4. Wide-around skirts must be supple to fall smartly. (Du Pont Super Extra Yarn makes a cloth that falls in clinging lines.)

LOLUSTRA

keeps its low lustre after it is laundered

Knitters and weavers who can't afford to gamble with artificially de-lustred rayons buy Lolustra. That subdued glow it gives to fabrics is inherent in the yarn . . . not painted on.

DUPONT RAYON

REG. U.S. PAT. OFF.

Member Rayon Institute of America, Inc.

DU PONT RAYON COMPANY

2 Park Avenue New York City

Why not beat competition to it?

There is a way right under your nose to get more co-operation from your employees; there is a way to show them how they can systematize their work so they will operate more machines with the same expenditure of effort, of work, and thereby earn more for themselves and for your company.

And, Good Lord, man, look at that scrap pile! Get all of your section men together and look it over. They will be ashamed of the supplies they have thrown away when you show it to them.

And waste: there is something you can always work on.

In the morning when the man starts to take the waste from underneath the cards, tell him to just pull the waste out on the floor and leave it there. Then you walk up each alley and see how your cards are varying. There's one taking out too much white cotton. Yes, and there is one not taking out enough, and that is costing your company more than the one which is taking out too much, because it is causing extra ends down in the spinning, and extra broken ends in the weaving.

Now, take the lap rolls, that the flat strips roll up on, off of the cards and let them run for fifteen minutes and then take a look. You will see Old Man Opportunity there, too—that is, opportunity for improvement; opportunity to improve your job is all around you, brother. Wake up!

That's the kind of opportunity which leads up to that other opportunity *you* had in mind when you read the first line of this: Opportunity for advancement, for more salary, for that bigger job.

Now let's discuss

Knowledge

You've heard me say so many times that there never was a time in the history of the world when it was so true that Knowledge is Power. Are you seeking knowledge? Are you keeping up with the advanced ideas of the best overseers and superintendents of the day by studying their methods. They are among those contributing to the "HOW OTHER MEN MANAGE" department of COTTON. Why don't you join the class by answering some of their articles. It will make you a more efficient man. It will make you think. It will broaden your mind. It will cause you to study your work. (No one will know who you are. Your name will not be used.)

Of course, if you want to just drift along and let some of these young chaps fill your place, it's up to you.

What about

Research

It is a fact generally accepted by leaders of all industries that progress is directly dependent upon Research. Are you applying this modern thought to your job, to your weave room, to your spinning room, to your card room, to your mill, and, more important than all, to *yourself?*

And here are some ideas about

Selfishness

Selfishness is a natural trait of human nature. Are you selfish enough to want to run your job better than anyone else can, or will run it? If you are, look out, for Old Man Opportunity will be around to see you pretty soon.

The next thought that comes to mind is about

Excuses

Excuses never quite clear your conscience, because your record tells its own story. Scarcely a condition ever comes up for which you cannot find an excuse. But after you have given the excuse, is your mind fully cleared of the error? If you have made a mistake, come straight out and admit it. Then try not only to make good for it, but be darned sure you profit by that mistake and do not make it a second time. "Wise men make mistakes. Fools continue to make the same mistakes."

And I'll never get tired of talking about

Reading

"Read everything you can buy, beg or borrow relative to your work." This statement brings to my mind an incident which happened to me years ago. My employer was overseer of weaving, and I was trying to run a section for him. Incidentally, he was my very best personal friend and his farsightedness and wise counsel caused me to be in the mill business. He was not an educated man—that is, not college-educated—but he had that wonderful education acquired by practical experience and hard knocks.

Well, he and I were studying mill calculations, etc., at night, and one day he came to me and said, "Here is an advertisement of a new book on designing by Posselt. How about you and I ordering one to study?"

"How much does it cost?" I asked.

He replied, "Five dollars."

Well, I was making $1.25 a day, and $2.50 was $2.50 to me about that time, so I replied that I could not afford to go in with him on it right then.

He stood there for a moment or so in deep thought. Finally he made this remark: "See here, young man, when you can buy five cents worth of knowledge for five dollars, it will pay you to borrow the money and buy it."

I have never forgotten that statement, and I have profited by it. I am passing it along to you, brother, that you may do the same.

And I couldn't close without saying something about

Ideas

Say, Mr. Mill Man, what are you getting paid for, any way?

Is it because you can run more looms, spinning frames, fly frames, cards or pickers than any of the operatives in your employ? Is it because you are stronger physically than any of your employees?

Well, not hardly.

I made the remark not long ago that a certain man

(*Continued on page* 594.)

TIME

That Precious, Record-breaking Flyer

IF it were possible for Modern Accountancy to check up *Time lost* in any single industry; and to value that Time on the basis of Time profitably employed, the result would mean .... *What wouldn't it mean?*

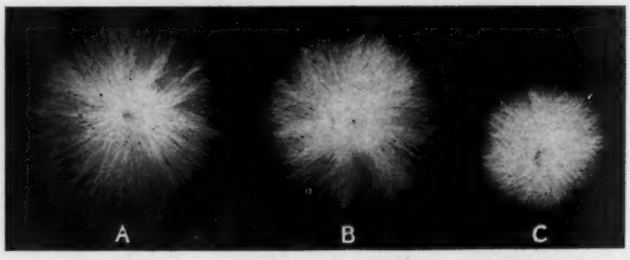
Time is the rawest of all factors in Business; and yet the most possible of profitable refinement. What is made of it is a matter of individual capacity. *Management* is Time's alchemist. With its human chemicals of mind, of vision, Management sees the hidden opportunity in the rough minutes as they come—takes it as they pass—and strings their flight into precious hours of service.

Modern Accountancy performs no magic with Time. It works only with the cold, hard facts and figures. But it works in the light of the needs of industry *today*—a light which reveals, perhaps more clearly than anything else, *the value of Time!*

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

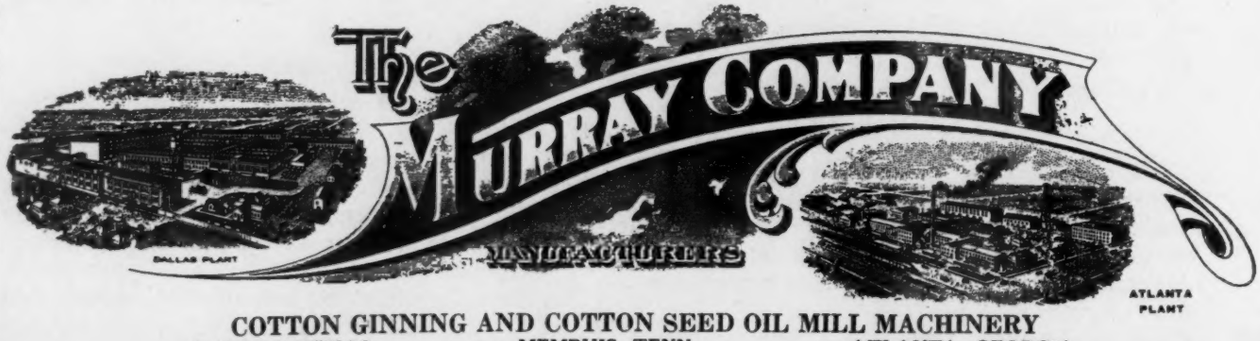
AKRON	CHICAGO	DENVER	HUNTINGTON, W. VA.	MEMPHIS	PHILADELPHIA	ST. LOUIS	TULSA
ATLANTA	CINCINNATI	DETROIT	INDIANAPOLIS	MIAMI	PITTSBURGH	ST. PAUL	WACO
BALTIMORE	CLEVELAND	ERIE	JACKSON, MISS.	MILWAUKEE	PORTLAND, ME.	SAN ANTONIO	WASHINGTON
BIRMINGHAM	COLUMBUS	FORT WAYNE	KALAMAZOO	MINNEAPOLIS	PROVIDENCE	SAN FRANCISCO	WHEELING
BOSTON	DALLAS	FORT WORTH	KANSAS CITY	NEW ORLEANS	READING	SEATTLE	WILMINGTON, DEL.
BUFFALO	DAVENPORT	GRAND RAPIDS	LOS ANGELES	NEW YORK	RICHMOND	TAMPA	WINSTON-SALEM
CANTON	DAYTON	HOUSTON	LOUISVILLE	OMAHA	ROCHESTER	TOLEDO	YOUNGSTOWN



A very large bulk of the cotton spun into yarns is of one of the three types pictured above.

A.—Scant bulk, but mostly long fibres ..... *Best for Combed Yarns.*
B.—Some long fibres backed up by a good bulk of short ones.... *Blends advantageously to build up lots of shorter staple.*
C.—Mostly short fibres, but no great difference in length between the shortest and the longest ..... *An excellent "filler,"—(if of 7-8" to 1") staple is capable of highly efficient milling.*

The MURRAY-HANCOCK process removes the seed in such a manner that the bulk of the long fibres are kept, in their full length, for spinning. It also combs out the curled (apparently short) fibres and makes them available for spinning. In each case, it results in MORE LONG FIBRES PER POUND.



COTTON GINNING AND COTTON SEED OIL MILL MACHINERY
DALLAS, TEXAS MEMPHIS, TENN., ATLANTA, GEORGIA

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Has Too Much Good Stock in Dust Room.

If you have had this trouble, tell this man what the trouble was and how you remedied it.

EDITOR COTTON:

We are having some difficulty upon which I would like the suggestions of some of your readers. We have a horizontal type cleaner, and the cotton goes from this through a 100-foot pipe to a No. 6 fan and condenser in the picker room. We are having a lot of good waste going into the dust room. Any suggestions which your readers can offer to eliminate this trouble will be appreciated.

H. F. (N. C.)

A System to Secure Even Picker Laps.*

Regulating the weight of picker laps to allow for changes in moisture content aids in producing even cloth weights.

EDITOR COTTON:

During recent years, there has been a number of methods developed, and systems worked out, for making adjustments in the weight of the picker lap to take care of the varying moisture content of the lap. I believe it is a very generally recognized fact now that, due to the frequent and sometimes excessive changes in the relative humidity of the average mill's picker room, the moisture content of the finisher picker laps will vary accordingly.

As an illustration, we will say that cotton normally contains about eight per cent moisture. If a very rainy day should come along, as it does quite frequently, then the amount of moisture or relative humidity in the picker room is going to be increased, and, correspondingly, the amount of moisture in the picker lap (since cotton takes up moisture readily) is going to be increased.

This means that if we issue instructions to our picker hand to weigh our finisher laps to, say, 45 pounds, that when there is an excess of moisture in the laps, there is going to be less actual cotton in that lap under conditions of heavy humidity than is in the lap on a dry day. Therefore, if we weigh the lap as it comes off of the finisher picker to a definite number of pounds, then included in that 45 pounds, for example, is more moisture than ordinarily, and therefore less cotton. The practical mill man knows the effects, in the way of producing uneven weights in later processes, if the weighing is done in this manner.

*The system described in this letter was devised by C. B. Walls, overseer of carding and spinning, at the Social Circle Cotton Mills, Social Circle, Ga.—The Editor.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

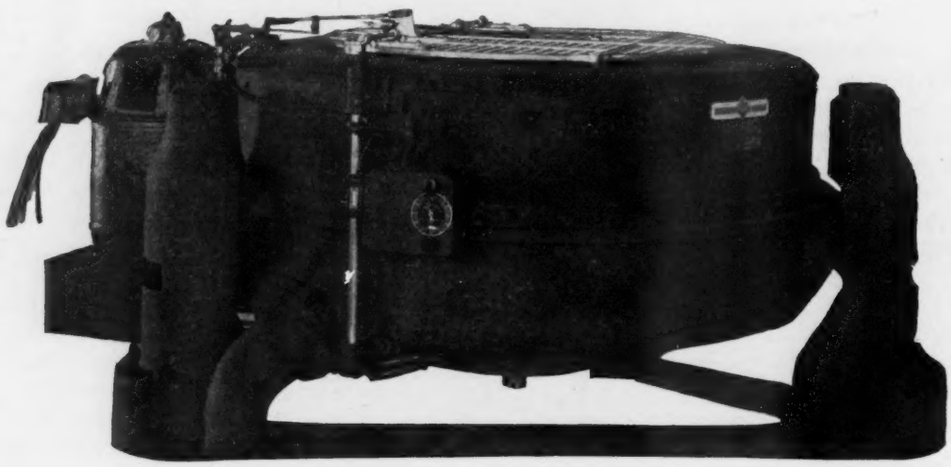
We have recently worked out and applied at our mill a very simple system for overcoming the likelihood of this difficulty, which I shall describe in this letter.

The first step necessary for us was to secure some means of determining the relative amount of cotton and moisture in a lap at different relative humidities; or, in other words, to find out just how much our lap should weigh, under different conditions of relative humidity, in order to have, actually, the same amount of cotton in a lap, regardless of the amount of moisture in it. We secured for this purpose a special hygrometer, available commercially, on which the needle changes, of course, with each change in the relative humidity. For the dial of this instrument, we secured a dial worked out on the basis of our standard weight of lap. In other words, when the relative humidity in our picker room is at a standard point, the needle on the dial points to the weight which the lap should weigh containing a normal amount of moisture. Then when the humidity increases, and moves the needle on the dial, it moves it along the scale on the dial, for any amount of relative humidity, to a point on which is shown the number of pounds which the same amount of actual cotton plus the additional moisture content, will weigh on the picker scale. When the relative humidity decreases, the pointer moves to the other side of the standard weight on the scale, and points to the number of pounds the lap will weigh, with the same amount of actual cotton in it and the smaller amount of moisture which will be there on account of the lower amount of relative humidity or regain.

In conjunction with this instrument, we have worked out an attachment for our picker scale which is shown in the accompanying illustration. The application of this attachment to the scale is comparatively simple, as will be noted. The illustration will practically explain itself. We brazed an arm to the side of the scale, with the two parallel sides drilled for a hole. The lower hole is threaded, and the rod extending through both holes is likewise threaded, and carries a butterfly screw at the bottom. Attached to this arm or rod is the finger or pointer which extends through

The Tolhurst

DESIGNED AND BUILT BY CENTRIFUGAL SPECIALISTS



your idea of an extractor

Into every Tolhurst Extractor we build the qualities that you would try for if you were building the machine yourself.

In Tolhurst Extractors you get complete freedom from vibration. You get a trouble-proof drive that brings the basket up to its rated speed quickly, smoothly, without strain. You get quick, easy loading and unloading. You get low operation and maintenance costs, long and trouble-free performance.

The Tolhurst is your idea of an extractor. Let us give you complete information. Write to the nearest Tolhurst office.

TOLHURST MACHINE WORKS, INC.
644 S. FULTON STREET, TROY, N. Y.

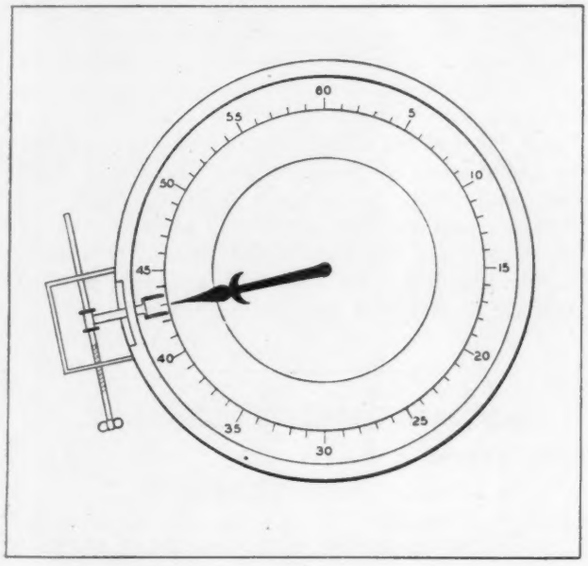
TOLHURST Extractors

New York Office: 30 Church St.; Chicago Office: 8 So. Dearborn St.; Southern Representative: Fred H. White, Independence Bldg., Charlotte, N. C; San Francisco Representative: B. M. Pilhashy, Merchants Exchange Bldg., San Francisco, Calif.; Canadian Representative: W. J. Westaway Co., Westaway Bldg., Hamilton, Ont., 455 Craig West, Montreal, P. Q.

3659

a slot cut in the rim of the scale and which goes underneath the glass on the scale and extends to the figures on the scale.

The end of this finger carries two pointers, between which there is a space equal to one pound on the picker lap scale dial. Since we allow a variation of ½-pound either way from standard, our picker tender is instructed to make all laps weigh within these two pointers.



Since ours is a small mill, our overseer of carding can attend to the adjustment of this finger personally. Regularly throughout the day, he watches the hygrometer, which is located on a post in the picker room. If the pointer on the hygrometer changes from standard either because of less or more humidity than standard, this pointer, as explained, will indicate the number of pounds the lap, with the changed moisture content, should weigh. Our overseer notes this, and then, by turning the thumb-screw or butterfly nut handle on the rod on the picker scale attachment, moves the finger over the figures on the scale dial up or down so that this weight comes midway between the two pointers on the finger. As previously explained, the picker tender is instructed to hold his laps within these two pointers, regardless of where it might be on the scales, so that it is not necessary for him to know or remember the actual weight of the lap. His whole job is to keep the laps within the variation shown by the pointers on this finger.

As an illustration, we will say that our standard weight of lap under normal conditions is 43 pounds. With such conditions prevailing, the overseer adjusts the finger on the dial attachment so that 43 pounds on the scale dial is midway between the two pointers on the finger. This obviously allows one-half pound variation either way from standard.

If there should be any condition which would increase the relative humidity of the room, and cause the pointer on the hygrometer to indicate that a weight of 44 pounds is necessary in order to have the same amount of actual cotton in the lap, the overseer moves the finger on the lap scale up so that 44 pounds is midway between the two pointers on the finger. This obviously takes care of the varying amount of moisture in the lap.

Since putting this method of correction into effect, our yarn numbers in the spinning room have become materially more even, and our cloth weights are correspondingly nearer to standard.

W. C. (GA.)

Points on Carding.

EDITOR COTTON:

In a recent issue of COTTON, "B. M. MASS." states that he would be very glad to see some discussion on carding in a future issue.

He is having trouble in his carding and I hasten to aid him. It seems to me that "B. M." should realize that the stock and the way it is handled are the most important factors in any card room, however.

It is now the goal of all cotton mills to have the roving and yarn as strong and uniform as possible. To accomplish this, the sheet of lap must be even. The many doublings of laps cause the fibers to be drawn past one another during attenuation many times, which aids in constructing a strand with practically the same number of fibers in its cross section.

Now if "B. M." will bear the following in mind, I am sure it will prove a help to him:

If the lap is even and the drafts in the succeeding processes are properly arranged, a yarn free from bunches and light places will be produced, and, granting that the stock is fairly even, no cockled yarn will appear.

If the draft is too short on the card and the lap uneven, the heavy places in the sheet will cause the waste to fly. In order to discover such a problem one should get down to the principle of carding. Watch a lap run out and you will see the waste fly from the flats, cylinder, and arch. Therefore, the fly is caused by the card being overloaded, the setting too close, or the feed plate set too far away from the licker-in.

"B. M." should now think of the setting of the front knife plate. The principle employed here should make it clear that the amount of fly can be regulated the same as the strippings. The less strippings we desire, the closer we set the knife plate to the cylinder. Therefore, in order to destroy fly on any card, it is first necessary to give attention to the back of the card, seeing that all spaces under the card are properly blocked, and that all doors at the back of the card are properly fitted, so that all air currents will be destroyed.

Next, the feed plate should be set as close as possible to the licker-in. This will prevent heavy places in the sheet of lap passing this point. In other words, such a setting will protect the whole card. Should a lap run out with the above setting, the heavy bunches found at the end of all laps will block the licker-in and save the fine wire on the card, and also, perhaps save many dollars. This setting

practically insures prevention of injury to the fibers.

"B. M." should beware of eveners that lack sensitiveness. Every cone belt on all pickers should be dressed every morning.

When the lap is presented to the action of the licker-in, it has been, or should have been, cleaned and opened into an even sheet, although it has not been thoroughly freed from all impurities. Granting that we have as even a sheet of lap as possible, do we spoil it at the card? We certainly do at times.

In order to make an even roving or yarn, we must construct a strand with nearly the same amount of fibers in its cross section. With this in mind, what happens when the doffer comb is raised too high? Stretch takes place on the sides of the web, and the right number of fibers in the cross section is made to vary.

Examine the web on all cards, and the same trouble will be found here as with the tension on fly frames. This is due to the position of the doffer comb, or the wrong draft between the doffer and calender rolls.

It is these defects that cause uneven yarn. The trouble with most carders is that they depend too much on the many doublings to remedy the defects. This may remedy defects perceptible to the naked eye to some extent, but the real test is the ring frame and the yarn testing machine.

Let us next consider the drawing. In all mills where waste or colored work is run, you find at least three sets of trumpets. Some mills that are supposed to be A-1 mills have had trumpets running since you can remember.

As I pointed out at the card, you can vary the number of fibers to the inch in the strand by the setting of the doffer comb or draft. Now on the drawing frame, this is done by means of the trumpet. Worn trumpets will cause stretch, even if the draft between the front rolls and calender rolls is arranged to create a slack web, simply because trumpets do not wear the same.

The trumpet, as most probably know, is like the draft rod in the long draft system of spinning. That is, the heavier the strand the greater the friction in the trumpet, and the greater the friction in the trumpet, the slacker the web, and this is as it should be. Therefore, in order not to spoil the good work from the card, we must arrange the draft on the drawing and also the setting of the drawing rolls so as to suit the size of the trumpet to create a slack web at all times, and to do this, all sets of trumpets must have the same size bore. Are the foregoing conditions found on all drawing frames? I think not.

WASH (R. I.)

Have you ever noticed that when a man gets something for nothing it does not seem to stay with him very well?

But you let a fellow deprive himself of pleasures to save a few nickles, work like the dickens while the other fellow loafs, strive for years to get his first thousand—that's the fellow who knows how to hold it.—OLD-TIMER.

Long Draft on Cards.

This man asks "Wash" for his opinion, and we invite other readers to take part in this discussion, regardless of which side is taken up.

EDITOR COTTON:

In the January issue of COTTON there appeared an article entitled, "Comments On Previous Lay-outs for 70s," by "WASH (R. I.)," which I found very interesting.

"WASH" stated in his article that he had some time in the past fought the long-draft-on-card boys. I certainly regret that I was not a reader of COTTON at that time, for I certainly would have enjoyed sparring around a little with "WASH" on the question.

It is my opinion concerning this subject, which I have reached, not in theory, but by actual experience in fine goods mills, that a heavy lap and a light feed will make a cleaner yarn than a light lap with a heavy feed. Therefore, I would like for "WASH" to explain to my satisfaction how a clean 70s yarn could possibly be weaker than a yarn with more neps in it.

K. Y. (MASS.)

Replies to Questions on Slubbers.

EDITOR COTTON:

In the November issue of COTTON, "V. T. (GA.)" wanted to know why it is that the ends on a slubber run slack until the bobbin is about half full and then run tight for the rest of the doff. He claimed that all gears were okeh, as they all checked with catalog tables, and, furthermore, that the present hank roving which he is making (.70-hank roving with seven wraps per inch) always gave him good results. Hence his trouble must be unusual.

However, I notice that our friend does not state the size of the slubber. He probably thought that this did not have any bearing on the subject, but I am going to mention it because for the different size frames the company recommends different settings of the cone belt for starting. I wonder if "V. T." has acquired the knowledge of these settings.

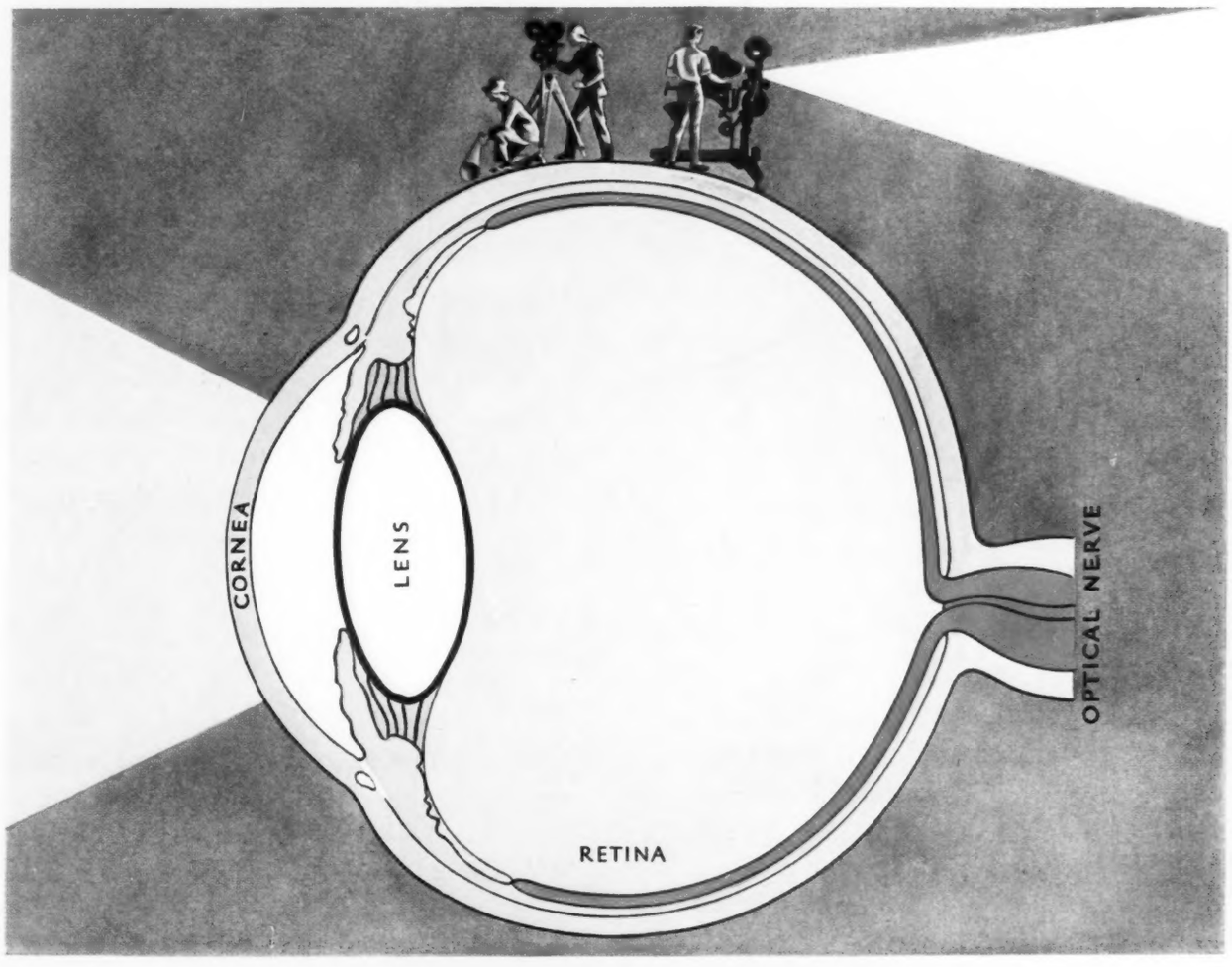
Of course most of us know the settings for the common sizes. That is, on a 12x6 frame a 2-inch diameter bobbin is used and the cone belt is positioned 1⅞ inches from the end of the cones. Then an 11x5½ frame uses a bobbin of 1 13/16-inch diameter and, as the bobbin of the 11x5½ frame is 3/16-inch smaller in the barrel than the bobbin of the 12x6 frame, the cone belt is set ⅞-inch from the end of the cones.

However, if our friend finds the foregoing does not apply to his case, I would advise him to look for other mechanical defects. It might be that a badly worn middle top cone shaft bearing causes a slight eccentric motion of the cone, thus resulting in uneven tension on the cone belt until it reaches a point where the eccentric motion is eliminated, probably about half way up the cone.

It has just occurred to me that our friend might be encountering a very common defect—namely, dirty bolsters. If such is the case, I imagine the bolsters are binding the carriage mostly during the longest traverse and this will cause slackening of the ends

YOUR EYES

are like a movie camera *and* projector *combined*



YOUR eyes focus on and take a sharp, clear picture of only one small portion of an object at a time. The surroundings of this small portion at the instant of focus are blurred and hazy. So your eyes, to see all clearly, must continually move, continually change focus—take moving pictures of an ever-changing scene. In addition, they "develop" these pictures on their "film," the retina, and then "project" them on the "screen," the visual nerve fibres of the brain. And as with the movie camera and projector, the kind of pictures your eyes take depends upon the *quality* as well as the *amount* of light reflected from the objects they "photograph."

The Cooper Hewitt spectrum shows that more than 90% of its luminosity is made up of the cool, yellow-green rays —the best-seeing light rays known to science.

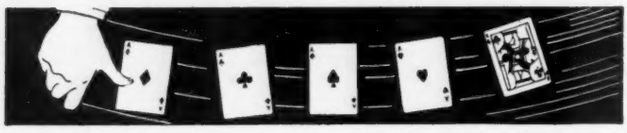
Under Cooper Hewitt light your eyes take quicker, sharper, clearer pictures—without eye-straining glare or dark shadows because this mercury-vapor light is composed *almost wholly* of the *mid-spectrum yellow-green* light rays. These rays provide the greatest *seeing power.* General Electric Vapor Lamp Co., Hoboken, N. J.

GENERAL ELECTRIC
VAPOR LAMP COMPANY

(Formerly Cooper Hewitt Electric Company)

[See next page]

Truth is never afraid to lay all its cards on the table



Increasingly, manufacturers realize that the most convincing word for any product comes from the product itself. When that is so, they are eager to put that product into the prospective buyer's hands, without obligation to buy, and let it speak for itself.

♦

The General Electric Vapor Lamp Company has followed this policy with Cooper Hewitt light for years. And our knowledge, based on experience, that Cooper Hewitt light decreases spoilage, increases production and promotes factory efficiency generally, is invariably corroborated by a trial installation. A few Cooper Hewitt lamps, given a few weeks' try-out in an industrial plant, are followed almost always by a complete equipment of Cooper Hewitts. For the advantages of this soft, cool, glareless light are instantly obvious, creating a desire for similarly improved seeing conditions throughout a factory.

♣

Take one example: back in 1927 one important manufacturer of airplane and automotive parts put in four Cooper Hewitt lamps for a 30-day trial. After only a few days he realized their unusual advantages and ordered 62 more! By early 1928 he had built an addition to his factory and installed 98 more Cooper Hewitts! Then followed, later in the same year, an order for 230 additional lamps! Today there are 394 Cooper Hewitt mercury-vapor lamps in this factory, making vision sharp and clear for every worker and inspector.

♠

And this factory, mind you, is of the modern, monitor-type roof design. But Cooper Hewitt light is needed to improve the available daylight and to give "better than daylight" illumination 24 hours a day. Cooper Hewitt light is composed almost wholly of the best-seeing light rays known to science and therefore augments and blends perfectly with daylight.

♥

BETTER THAN DAYLIGHT

MANY other advantages of Cooper Hewitt illumination are given in a simply written booklet "Why Cooper Hewitt light is better than daylight" which will be sent gladly upon request. General Electric Vapor Lamp Co.,853 Adams Street, Hoboken, N. J.

GENERAL ELECTRIC
VAPOR LAMP COMPANY

(*Formerly Cooper Hewitt Electric Company*)

417 © G. E. V. L. CO., 1930

for that period. Therefore, "V. T." would do well to have all of the spindles running freely in every way, which would assure perfect freedom to the bobbin rail or carriage.

Another item is the condition of both cone drums. Are they worn and therefore not maintaining their true outlines?

Sometimes an untrue builder screw will cause slackening and tightening of the ends. Probably for about half of the doff the builder works freely, but as the builder jaws close the screw begins to bind, thus the long rack will not always be given its full lateral movement at every change.

Possibly the frame of "V. T." is running with a larger tension gear than is necessary for the full doff in order to overcome, if possible, the tight winding when the bobbins are half full.

I believe that if our friend will look over the few defects that I have mentioned he may be able to arrive at the solution of his problem.

D. E. (R. I.)

Thrift in the Mill.

It seems we can learn even from Old Tige, the Dog, on a matter of utmost importance. "Did you ever watch a dog when he was eating a piece of meat or gnawing a bone? Did you watch to see what he did with what he had left, and did you realize what a wonderful lesson in thrift he had taught?" Read this man's ideas about it.

EDITOR COTTON:

May I ask the readers of COTTON the following questions with reference to thrift and make the application as I see it?

Did you ever watch a dog when he was eating a piece of meat, or gnawing a bone? Did you watch to see what he did with what he had left, and did you realize what a wonderful lesson in thrift it was? Did you see him when he took the remains of his meal and buried it for some later date when times would be hard and a meal would be difficult to find? Can you imagine the thrill he must have felt when, after hunting a meal for a good while he suddenly thought of his buried treasure? Can you? I'll say you can, if you've ever had a bank account to fall back on when short-time or when sickness hit you.

Now if you haven't thought over the matter as to what a wonderful lesson in thrift a dog can teach you, then take the writer's advice and watch one, at your first opportunity, and you will see the application.

My advice to every working man is to follow the example of the dog. When you have a job, working full-time and clearing a few bones, bury them, for the time will come, at some period in your life, when you will, like the dog, be glad to go back and dig them up, that is, provided you have them to dig up. If you have, you will feel a thrill akin to that of the dog when he went back to dig his.

There are numbers of possible overseers in the mills today running sections, just because they did not bury the bones when they had them. If they had, there would have been enough on which to retire, or to have tided them over until they could have found what they wanted. As it is, they may have to finish out their days running a section, or, even worse, may have to spend their last few years pushing the brooms. This has been known to happen. It is pretty hard to go from sweeper to superintendent, but it is mighty easy to go from superintendent to sweeper. However, all of this can be prevented if we only use as much good sense as does the dog, who is supposed to be dumb. It is something to think about. It is better to bury the bones while you are young and can, for then you will have something to dig up when you get to be an old man.

J. T. D. (MISS.)

Square Yard Weight of Cord Tire Fabric.

A number of opinions on how this should be figured; furnished by several prominent manufacturers.

RECENTLY, a subscriber asked for a formula to determine the square yard weight of cord tire fabric. In an effort to obtain this information for him, we sent the question to several mill men. As there were some instances where the men we submitted the questions to were not sure that their method was correct, we feel that it will be to the interest of many to publish some of the replies to the question.

Our first contributor gave the following formulas, stating that they were the formulas used in his mill and that he had found them to check as closely with actual conditions as any he knew of:

$$\frac{\text{Ends per inch} \times 36 \times 16 \times (100 + \text{percentage crimp})}{\text{Cord size} \times 840 \times 100} = \text{wt. cord warp}$$

$$\frac{\text{Picks per inch} \times 36 \times 16 \times (100 + \text{percentage crimp})}{\text{Single filling size} \times 840 \times 100} = \text{wt. filling}$$

Total sq. yd. wt.

As an example, he offered the following: "To find the square yard weight of a 23/5/3 cord fabric having 23 ends per inch and 2½ picks of 23s filling:

$$\frac{23 \times 36 \times 16 \times 102.5}{1.20 \times 840 \times 100} = 13.47 \text{ ounces warp}$$

$$\frac{2.5 \times 36 \times 16 \times 116.0}{23 \times 840 \times 100} = 0.086 \text{ ounces filling}$$

13.556 ounces square yard

Another man wrote that he would refer anyone wanting to know how to determine the square yard weight of cord fabric, which has been woven, to the following data of the American Society for Testing Materials, prepared by the Committee D-13 on Textile Materials, page 32, item 10, which is as follows:

"10. The net weight of the roll or piece from which the covering or binding has been removed shall be determined. The net weight of the roll or piece divided by its standard area in square yards shall be taken as the normal net weight per square yard."

He further stated that "anyone wanting to figure square yard weight of cord fabric from the weight of the cord might do so by developing from the weight of the cord (expressed either in size or yards per pound) the number of ends per inch, the weight of the

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SKYCO No-Glare is a sky-blue liquid that you paint or spray on the glass of your windows and skylights. The resulting film of No-Glare FILTERS the intense glaring sunlight, letting in 94% of the light but rejecting *all* of the tiring glare and 15° of the heat (actual thermometer tests). Goes on *outside of glass*—yet rain or weather conditions do not affect SKYCO No-Glare. Neither will it rub or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

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Reduces Heat 10° to 15°— Yet 94% of Light Maintained

SKYCO NoGlare

Gives a Cool Diffused Light that is Restful

filling and the picks per inch, taking into consideration, of course, the weaving shrinkage. The weaving shrinkage will naturally vary with the number of picks per inch used in weaving fabric, therefore, it is impossible to give a formula which can be used accurately with various constructions."

A third contributor offered the following as a method.

"First, determine the total theoretical weight of 100 yards of finished fabric. This is done by figuring 106 yards of cord to finish 100 yards of fabric for two and one-half pick; 107 yards for three pick; 109 yards for four pick; and 110 yards for five pick. Of course it is also necessary to add a certain per cent for twist contraction in the cord, using 15 per cent contraction for a cord with standard twist of eighteen and eight. Then add to the cord weight the weight of the filling used in the 100 yards of fabric. Of course this is figured by using the width in the reed so as to take care of the contraction in the filler.

"This method will give the total theoretical weight of 100 yards of fabric. Then multiply this weight by a constant which is found by dividing 576 by the width of the fabric.

Still another contributor writes that they have been unable to find a suitable formula for determining the square yard weight of cord fabric, due to the fact that the twist in the ply yarn and the cable yarn affects the weight to such an extent that a formula is not accurate.

This man also says that, although those who are just starting in the cord fabric business will experience difficulty in the application of such a method, those who have been in the business for some time can use a fabric with a known yarn number as a basis from which to make theirs.

As a guide, he gave the following: "The cord fabric made of 23/5/3, with 25 ends per inch and 3½ picks per inch will weigh 14.4 ounces per square yard approximately. The yarn will have 18 turns twist in the ply and 8½ turns twist in the cable. A variation from this twist will cause a variation in the weight per square yard. With this information it is possible to determine to some extent the weight of a fabric where the yarn number is known."

If any of our readers have further ideas, we would be glad to have their opinions.

Remember what OLD TIMER told you about a mule in an article some time ago? Well, anyway, I don't want you to forget it.

Did you ever see a mule *pulling* and *kicking* at the same time?

Impossible.

And an overseer can't do it either.—OLD-TIMER.

"Tall oaks from little acorns grow," but no man will ever hold a big job and command a large salary unless he can get to be broad-minded; lend an attentive ear to the experience of others; make earnest endeavor to interpret and carry out his superior's orders; and, above all, not forget that there are a few others that probably know as much as he does.—OLD-TIMER.

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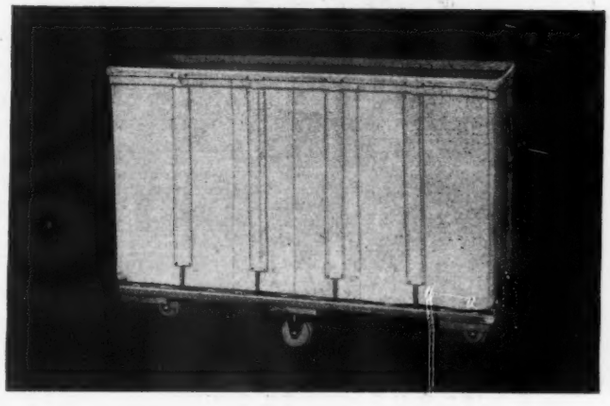

Light is improved 30% to 50%

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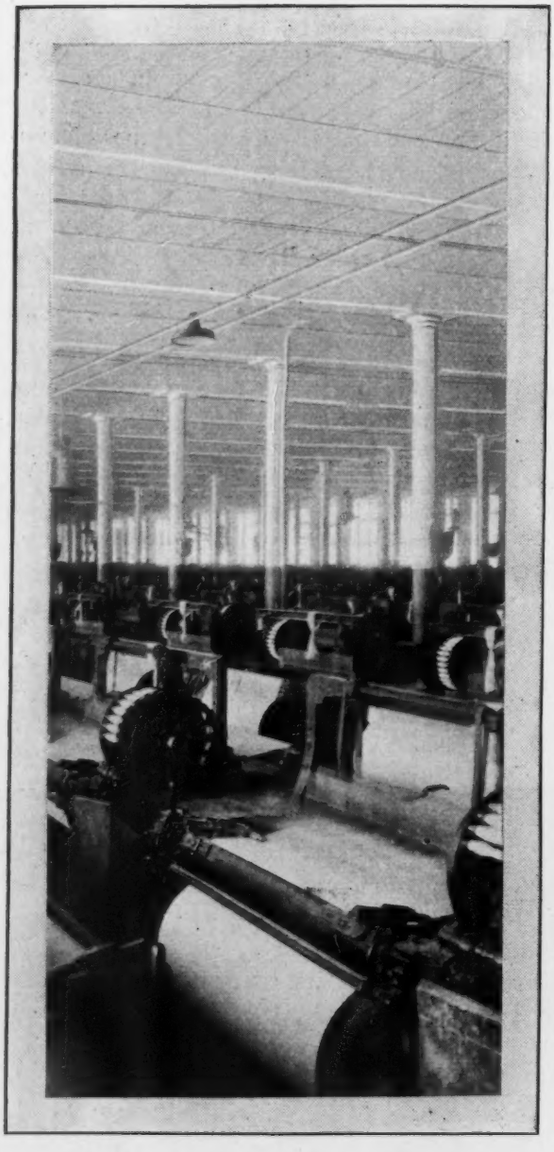

Special Sherwin-Williams formula offers important advantages

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S-W Save-Lite Industrial White Finishes were developed by Sherwin-Williams to improve the lighting of industrial interiors. This paint offers a number of important advantages. Properly used, Save-Lite increases working light just as surely as though windows were made larger. The increase is often as great as 30 to 50 per cent. As a direct result, production increases, accidents are fewer, spoilage is reduced and morale is raised. Save-Lite offers other advantages. It is economical to use; and *stays* white.

Save-Lite superiority in reflecting and diffusing light is the result of a balanced formula developed in the laboratories of Sherwin-Williams—world's largest producers of paint products. This formula calls for special oils and other ingredients which are made available in unvarying high quality only by complete control of raw materials. Extra fine grinding—so important in a paint of this kind—is accomplished in machines designed by Sherwin-Williams.

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Note: Our office at Spartanburg, South Carolina (224 Montgomery Building), is maintained for the convenience of mill owners and operators in that section.

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SHERWIN-WILLIAMS SAVE-LITE

"Wash" Agrees with "Old Timer."

EDITOR COTTON:

I am sure that many readers got a thrill out of reading "OLD TIMER'S" article in the July, 1929, number of COTTON, entitled, "Who Said a Man Is Old at 40?"

On the same evening this issue came to hand, I heard a true story over the Columbia Broadcasting System, where a man was fired at the age of 40, the reason being given that he was too old. This same man applied for a job in many places, finally being engaged. The position was only that of time-keeper, but he proved to be of such great value that in a short time he had reached a position as one of the heads of the firm.

Now let us take "OLD TIMER'S article apart and examine it. He states, "This is not a day of brawn and muscle, but a day of brains." Again, he states, "He has the knowledge born of experience." To me this article is the best that "OLD TIMER" has ever written, for the reason that it may save many men their jobs in the first place, and will revive hope in the breasts of many like "WASH," who have passed middle age, and will be an incentive to them to "carry on."

"OLD TIMER" is dead right. Gray hairs do not indicate an empty head. Men should be paid by the year, not for their years. We should buy labor just as we purchase equipment, and why not? We want the machine (human or mechanical) which delivers with maximum perfection and minimum waste, which operates at the greatest mental and mechanical speed and with the fewest errors. We should look for and are always looking for, the man who piles up the biggest profit, and we should not care whether he was born 25 or 55 years ago.

True, we must infuse new blood into our industrial and trade systems, not because we lack faith in age, but when the old has run out, the new can take its place.

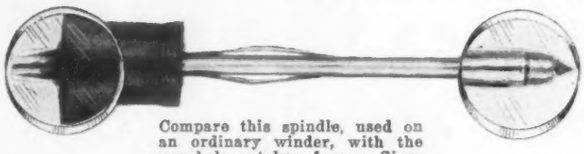
The law of the "survival of the fittest" is merciless, yet just. Displacement by force of merit is inevitable, but, age is something else.

There are many cotton mills that have the pension system, when instead, they should say to many of their workers: "You were paid in full for past performance. At the outset you demanded as big a salary as your ability could command; as you became more valuable, whenever you could, you seized the advantage at every stage; throughout your progress you held out for the full value of your increased worth. Therefore, we are under no obligation to you, as we feel that the score has been evened, year by year."

What "OLD TIMER" conveyed to us by his wonderful article is, that if a man's mind is up-to-date we should forget the date of his birth, and I believe that if a man ceases to absorb new ideas, or closes his eyes to improvements; if he is sure he is too old to learn, *then*, he is assuredly too old to earn.

In this article, I am going to prove that "OLD TIMER" is right—"He has the knowledge born of experience"—what is experience? We ask a man, when he is applying for a position, "What has been your

Which Spindle is *Yours?*



Compare this spindle, used on an ordinary winder, with the one below, taken from a Sipp-Eastwood. Note the worn ends here—the oil soaked head—the caked dirt.

Then observe this—the ends are like new—unworn. The head is free from oil and dirt. Oil-less spindle bearings, with which Sipp-Eastwood winders are equipped, account for the difference.

Bracket showing patented-oil-less spindle bearing.

CAST-IRON bearings and spindle ends on ordinary winders soon become worn. Spindle speed is lowered and production declines. In the attempt to retard wear and maintain production, operators oil the spindle ends. This oil gets on the yarn by way of the spindle heads and operator's hands, and causes trouble in dyeing. Spools, moreover, are wound unevenly and cause trouble in winding.

On the other hand, when bearings in Sipp-Eastwood single and double deck winders are worn, they can be turned around and a new surface used. The spindles last indefinitely. Spools are wound accurately and evenly. No oil spots the yarn.

We will gladly send you a sample bracket with a patented bearing to show you how easily it works. No obligation.

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INDO CARBON CLG conc.

THESE blacks are members of a special new group of sulphide blacks which possess the advantage over the ordinary sulphide blacks of producing shades of *excellent fastness to prolonged storing, hot steaming, ironing and acid cross-dyeing.*

The dyeings of Indo Carbon CL Conc. and CLG Conc. are *very fast to washing, boiling, ironing, stoving, alkalies, and mercerizing.*

The good *fastness to chlorine,* in which they surpass all other sulphide blacks, deserves special mention. As a result, Indo Carbon CL Conc. and CLG Conc. may be used for dyeing goods required to stand bleaching in the piece, provided due care is exercised in the method of working.

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experience? How many weeks or months have you worked on your last job?" Too often, also, similar inquiries are made when there is some thought of promoting a man to a better position. Now what is meant by experience and success in relation to cotton manufacturing?

By the expression "gaining experience," we mean the actual performance of certain work, and by success in a given operation we mean that this work or operation is done in a fully satisfactory or successful manner. However, many still hold to the opinion that successful work depends on the number of times the operation or work has been performed. This, however, depends entirely on the manner and mental attitude in which the work is done. "Use your head," says "OLD TIMER." What does this mean? For the sake of illustration, let us take a simple mechanical operation: If a workman performs a certain operation in a mechanical way, that is, unthinkingly, it is not necessarily a completely successful operation, no matter how many hours a week he may have been engaged in doing over and over this very work. But, if a man, by careful thought and manipulation of the various controlling levers can either economize in time on the machine or eliminate unnecessary motions by himself, he will make the operation successful, regardless of the actual period he has been engaged on the work or the number of times he has performed the operation. It should be seen that in the first case he is allowing his physical powers to gain precedence over his mental ability, and consequently, in a short time, he becomes merely a part of the machine which he is operating. In the second case, it shows a man to be alive to his opportunities in making the simplest operation successful.

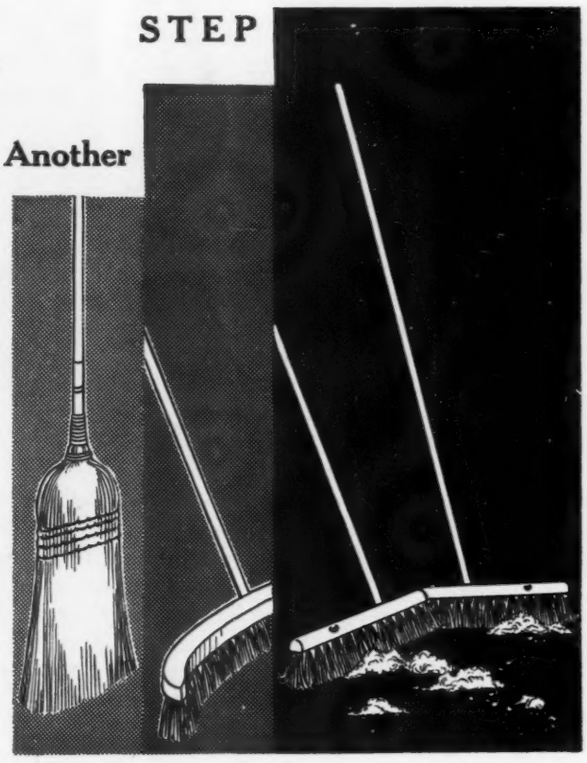
For instance, let us consider the speeder tender, and let us assume that she or he knows little about the winding-on. The rack may not be working as it should. Here is where careful study and experience counts. If the fixer is not called, or if the tender allows the frame to run under such a condition, matters grow worse, and as stated, here is where mental ability is lost through lack of experience.

Let us consider another case on fly frames. There is nothing that will bother a fixer as much as a worn stud carrying one of the bevel gears in the compound of the Holdsworth motion. I have seen fixers work all day on a frame, changing the cone belt, driving belt and using heavy belt dressing to overcome the trouble, with no remedy at the day's end. In such a case a frame will give trouble for days. Any speeder man of experience would change the compound immediately, instead of allowing his physical powers to gain precedence over his mental ability.

Let us next consider the loom fixer. The success of his work depends entirely upon the manner and the mental attitude in which he does his work, and not by the number of times the operation or work has been performed. If a loom fixer does his work in a mechanical way, that is, unthinkingly, (which is often the case), it is not a successful job, and in a short time he is called again to the same loom. The quicker way is not always the better way. WASH (R. I.)

FORWARD STEP

Another



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Additional Answers to "Old-Timer's" Third and Fourth Weaving Questions.

Compiled by J. W. Swiney.

LAST MONTH we gave a compilation of opinions to the first two questions asked in "OLD-TIMER'S" weaving contest, and this month we are going to give you the opinions of several of our contributors to the next two questions, the third and fourth. Next month we hope to do the same with the last two questions.

The fact that these answers are being selected for publication does not necessarily mean that they were regarded by the judges as the best answers to these particular questions. The answers were selected in an effort to present as nearly as possible the general trend of thought of the various participants in the contest.

It seems that "OLD-TIMER'S" wording of the third question, "Why do you set the harness cams to pick from the right-hand end with the back harness up—or do you?" confused quite a few of the boys. The majority stated that they picked from the right hand end of the loom with the back harness down in order to have the filling pull on the bottom shed, which, being the tighter shed, gave a better looking selvage. Quite a few, however, gave various reasons for picking from the right-hand end with the back harness up.

A large majority of the contestants seemed to be of the opinion that the picking motion was the main motion that prevented the loom from being operated at a higher speed.

Perhaps you will disagree with some of the answers given here. We hope that you will, and that if you do, you will let us hear from you, for we know there are many others who would be interested to learn of your viewpoint concerning the matter.

The third question was:

Why do you set the harness cams to pick from the right-hand end with the back harness up—or do you?

One contributor said, "I do not. I set the harness cams to pick from the right-hand end with the back harness down, because I can make a little better selvage this way, as we start drawing in the warp from the right-hand end and draw the first thread in the back harness, the shuttle passes over the outside or selvage threads at each end, and this allows the filling to pull on the bottom thread which is the tightest, thus making it less liable to jerk notches in the selvage. However, I have seen them set the other way."

Another stated, "I set my looms to pick from the right-hand or battery side, over the back harness yarn. We run army duck, this being drawn three ends to a dent except at the selvage. Each outside dent must have only two ends, the second dent must have three ends and the third dent may have two, three or four ends, whichever is necessary. The filling must always loop on the bottom shed and that end must be the outside end, and the ends must be arranged in the first three dents as described. This is the first requisite in making a good selvage on army duck.

CORRECTION IN GAFFNEY'S REPLY TO NO. 3

IN HIS prize-winning letter in the weaving contest, H. Raiford Gaffney, of Columbus, Ga., made the following statement in his reply to Question No. 3, as published in the December issue: "In the case of twills and sateens, the front harness is operated by the largest cam, the second harness by the next largest cam, and so on."

In reading his reply as published, Mr. Gaffney immediately recognized this as having been a careless mistake on his part in preparing the answer, and called attention to the fact that this of course should have read, "The front harness is operated by the smallest cam, the second harness by the next smallest, and so on."

Since several readers have pointed out this error, and since Mr. Gaffney upon reading it in print, corrected it before any of these comments were received, we publish this explanation in fairness to him, and with apologies from him for the careless slip which permitted it; and for the benefit of other readers whom the incorrect statement may have confused.—The Editor.

"There are, however, many other points that must be observed in order to make a good selvage, but the filling must loop on the bottom shed. If then a loom is set to pick from the battery side over the back harness, the outside end must be in the back harness. If a loom were set to pick from the battery side over the front harness, the outside end at the other side must be in the opposite harness. I have done much experimenting with looms set opposite from our standard setting. After rearranging the ends properly so that proper looping will take place, and with everything else equal, as good a selvage can be made one way as the other.

"A large amount of labor is saved in the weave room, by having all of the looms set in the same way. All the patterns have the outside end on each side in the proper harness and the smash hand or weaver does not have to rearrange the ends with each new warp, as would be the case if some looms were set one way and some the other. I have heard men say that a loom should pick from the end nearest the harness cam that is down, but have never heard one give a satisfactory reason for this."

A third contributor's answer read, "I do not set my looms to pick from the right hand box with the back harness up, but with the front harness up. The cam which works the treadle of the back harness has more offset from the cam shaft, though being no larger, and gives the back harness treadle a longer stroke up and down, which is offset some by the jack strap of the back harness being hooked farther back from the end of the treadle than the front harness jack, but the front harness, being nearer the lay, gives a better and smoother shed when it is up, than when the back harness is up. And the right hand or change end of a loom being the end most likely to give trouble or throw a shuttle out, it should have the advantage of picking from the right hand end when the front harness is up. The front harness carrying the first selvage thread on the left and the back harness carrying the last selvage thread on the right, and the loom set as mentioned, the filling will always be pulling around the outside selvage thread, and therefore make a nicer

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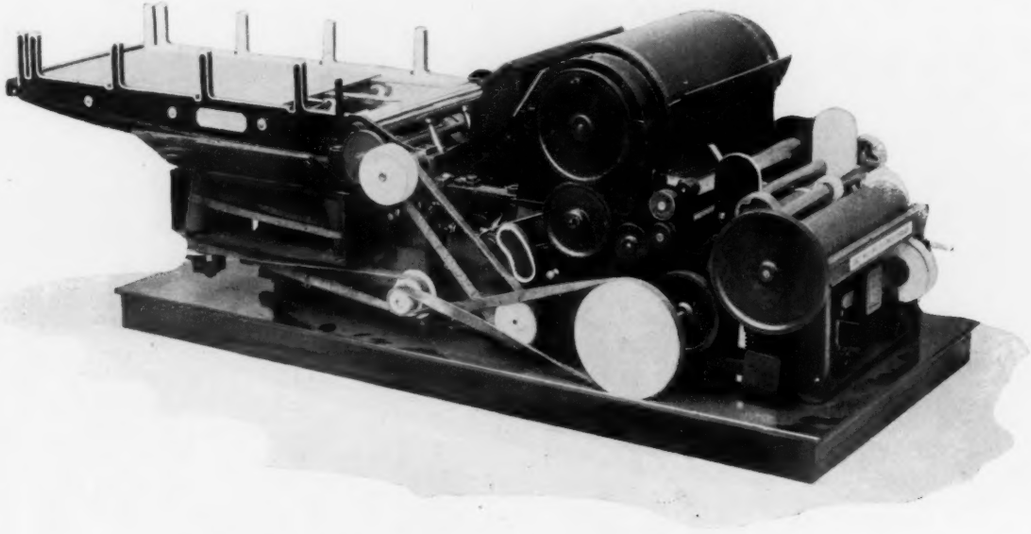
Pictorial History of Textile Machinery

By Prof. Chas. E. Mullin, D.Sc.
Clemson College Textile School,
Clemson College, S. C.

PART III

(Editor's Note: This is the third of a series of features in which illustrations of the earlier models of regular textile machinery, together with brief descriptions, will be presented. The photographs and information were secured by Dr. Mullin on a recent trip to Europe. It is felt that these interesting photographs of old machinery will be suitable for filing or framing by the reader.)



Model of a Scutching Machine

THIS PICTURE shows a four-lap scutcher with a single beater. The cotton, which has already been ginned and passed through an opener, is received by this machine in the form of roller laps. These are further cleaned by the removal of seed, leaf and other foreign matter, and delivered in a very regular sheet by the scutcher. As many as four of these laps are supported on horizontal spindles, over a traveling apron, conveyed to a small fluted feed roller which delivers them into a chamber within which revolves a two-bladed beater, working at 1,300 revolutions per minute. These blades pull off the cotton in small pieces as it is fed in, and throw it on a fine screen.

At the upper end of the screen are two hollow revolving cylinders with finely perforated surfaces. The ends of these cylinders are connected to two air lines from which air is continually being drawn by a fan arranged in the base of the machine. These air currents carry with them the dust and finer particles, but deposit the cotton on the surface of the cylinders, from which it is drawn off in two laps by a pair of rollers. The rollers compress them into a single lap, which is wound up on a cylinder resting upon two live cylinders with fluted surfaces.

To obtain a cleaner cotton and a more regular lap, two or more of these machines are generally used, the cotton passing through them successively before it is passed to the carding engine. The scutcher shown cleans about 250 pounds of cotton per hour and requires about 4 horse-power to operate.

A very important feature in these machines is the "piano motion," patented by Mr. Edward Lord in 1849, by which the speed at which the cotton is fed into the machine is automatically varied, so that the lap delivered shall be of uniform thickness, regardless of any irregularities which may exist in the original lap. The arrangement consists of a number of levers, placed side by side on a common axis. The short end of each lever presses upon the feeding roller, and between these ends and the roller the cotton is fed. The thicker the cotton the greater the extent to which the lever is depressed, and the total motion of all of the levers is proportional to the quantity of cotton being fed in at any instant.

From the long arm of each lever hangs vertically a wedge, and between each wedge is an antifriction ball, the whole series being kept in place by a channel that stretches across the machine. One end of the channel is solid, and the other end is closed by a bar that is connected with a fork that controls a belt running over a pair of opposite cone pulleys. These cones transmit the motion to the feed roller, and when the wedges lift, owing to thick portions of lap being fed in, the belt is shifted so as to diminish the velocity of feed, and thus secure a uniform deposit of cotton on the perforated drums, which are running at a constant speed. From a British museum.

looking and better running selvage. All looms that change on the right hand side should be set this way for the sake of having the job uniform, if for no other reason."

Another man felt this way about it. "I do not. I always set the cams so as to have the shuttle travel over the front harness going to the batttery. That is, the shuttle when it is leaving the left hand or lever end of the loom is traveling over the front harness. I do this because I really believe a loom makes better cloth and I want the shuttle to travel over the front harness on its way to the battery because the front harness being nearest to the reed and fell of the cloth, there is not nearly the liability of interruptions from the yarn as there is from the back harness. It is absolutely necessary that the shuttle reach the shuttle box under the battery and be in a steady position a little ahead of time so that the exchange of bobbins may be properly performed. There may be other reasons, but these are enough if I am right."

Still another had this viewpoint, "We set our harness cams with the front harness up and the shuttle in the right hand end. We do this in order to make it much easier for the smash hand to draw in a break out, for you know it is a general rule for the loom to make a break out from the right hand end when it is hanging bobbins."

Question No. 4 read:

What part or motion of the loom prevents its being operated at a higher speed?

One man said, "The shuttle keeps the loom from being operated at a higher speed. The motion which governs the speed of the loom is the shuttle. The shuttle must have time to go from one box to the other while the crank-shaft is turning from top center to bottom center. To increase the speed of the loom the pick motion must be made stronger to get the shuttle across quicker and this will cause the box fronts to have to be set closer in order to stop and hold the shuttle and not let it rebound. This will cause more breakage and more wear of the loom and the shuttles. Proof that the shuttle governs the speed which the loom can be successfully operated is to remove the shuttle and fasten the protector rod so it will not knock off, and you will find that the speed can be increased a great deal."

Another contributor's ideas were along the same line: "Both the picking and shedding motions of looms, as now constructed, put a limit on the speed of the looms. As the loom is speeded up sheds are formed by quicker, harsher jerks on the harness, the ends in the warps are pulled back and forth between each other with greater speed, thus subjecting them to a great deal more friction and increasing end breakage. The picking motion of our looms is still crude, really just being a series of mechanical knocks which bring a great deal of strain on all parts of the loom, and of course, this strain is increased in direct proportion to the increased speed of the loom, as the faster the loom is run the quicker the pick has to be made or the more force is applied to the picker stick.

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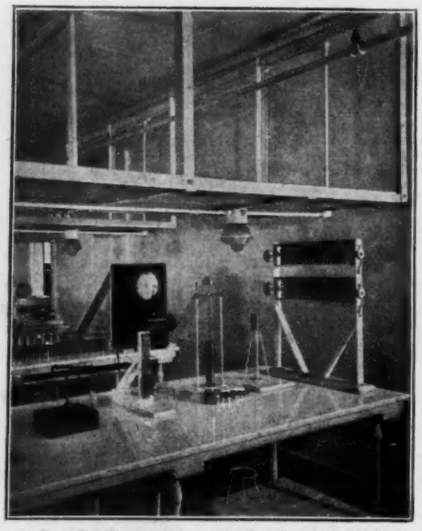

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Consequently, when a loom is speeded up it increases the wear on the shuttles, reeds, pickers, check straps and binders and increases breakage of picker sticks and practically all working parts of the loom."

A third contributor brought out the following interesting facts: "Picking is the weak point in a loom and is the motion which prevents the loom being operated at a higher speed. The action of all picking is practically a negative one. Picking motions are uncertain in action, costly to keep right, and the most dangerous part of the loom. Defective picking causes more serious accidents than all other parts of the loom combined. The speed of a shuttle, coupled with an imperfect controlling force, is the chief cause of serious defects in picking. The shuttle is negatively propelled and its movement is essentially a jerky one which frequently produces disastrous results. Its speed is developed suddenly and is greatest where the majority of defects are likely to be found. The speed at which a shuttle must travel across the race plate is calculated to average about 40 feet a second and if this is accelerated the shuttle is more liable to fly out and is also much harder to check as it enters the box. Increasing the speed of the shuttle also increases the tendency of the shuttle to be drawn off the race plate on account of the filling passing through the eyes which are placed at one end of the shuttle. The power required to develop a high speed suddenly is greatly in excess of that required to develop it gradually. Consequently, a shuttle should begin to move slowly and increase its speed up to the center of the lay and from that point a corresponding decrease should take place until it finally stops in the opposite box from which it started."

Slashing and Weaving Broadcloth.

Several opinions on sizing, drawing-in, contraction, cams, etc., on high sley broadcloth. Let's have more from men of experience.

EDITOR COTTON:

In a recent issue you published some interesting questions from "G. W. (GA.)" with reference to weaving cotton broadcloth. This man asked several questions with reference to the harness, drawing-in, cams, contraction, size, etc., on broadcloth, which I shall answer in the order asked.

His first question wanted to know "whether it is practical to run four harness, with two working together, thus making it the same as a plain two harness weave, or whether some other method would be better."

In answer to this question, let me tell you of my experience with a specially designed harness for broadcloth, which I would recommend to this man. This harness is built so that a man can get the benefit of four shades on the regular two shades. There are two sets of eyes on each harness shaft, the same as would be secured by using four shades. A weaver can run more looms with this type of harness than he can on four shades, because there is so much less end breakage. There are also less pick-outs, and the harness can be set better. The fixer can tie on warps

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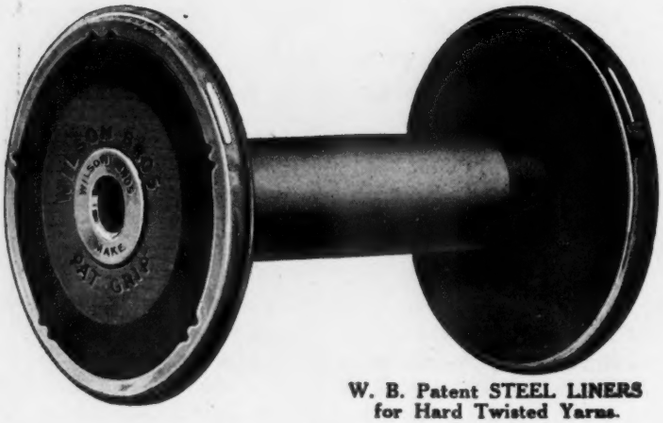

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quicker, and I have found that this type does not give the harness skips or so-called overshots often experienced with four shades. A weaver can tie in a harness eye quicker and better than on four shades, and the yarn has less chafing.

The second question wanted an explanation of how the warp is drawn in the harness on these goods—broadcloth.

With the type of harness explained, it is drawn in just the same as four shades, because there are really two shades on each shaft. Starting on the back harness, it is drawn 4, 2, 3, 1. That is, the first thread is drawn through the back eye on the back shaft, the next thread through the back eye on the front shaft, the next thread through the front eye on the back shaft, and the next through the front eye on the front shaft, thus making one repeat. The drawing of the reed will be apparent to any good drawing-in hand if you use a reed of two threads per dent. However, a reed of three to the dent can be used, which will of course run better from a weaving standpoint, but the goods will not look as well as with a two-threads-per-dent reed.

This harness must be drawn by hand, and the drawing-in hands may not like it as well at first, but I have found that after it is adopted the drawing-in hands will like it better than drawing in four shades, and they can do it faster. If a mill has a warp drawing-in machine, it can be adjusted so that it will draw the harness, and incidentally draw the regular harness better than it draws the regular plain harness now. If a tying-in machine is used, it will tie the warps on this type of harness the same as it ties the regular two-harness warp.

This type of harness is no experiment. Many good mills are using it not only on broadcloth, but on 80/80, 80/92, 72/76, and other weaves, and I believe that a mill would be perfectly safe in adopting it on broadcloth.

Your inquirer next wanted to know what "staggered cams" mean. Staggered cams are built by the loom manufacturers for use where four shades are used. (The harness described will eliminate the necessity of staggered cams). Staggered cams are a great improvement over the regular cams in running four shades with two shades fastened together and working as one. There are four cams—one for each harness, but two of them go up together and two down together. For example, we will number the cams 1, 2, 3, 4. Cams 1 and 2 are down while cams 3 and 4 are up and vice versa. Here is where the advantage comes. The cams are built so that cam 2 follows a little behind cam 1, as they go down, and the yarn is a fraction of an inch further from the race plate when both cams are all the way down. This, you will see, gives less crowding of the yarn.

The next question was what percentage of contraction is the average on broadcloth. The contraction in the width of the warp will be considerably less than on print cloth weaves, for example, because the warp has so many ends that it is not pulled in as much by the filling. On a high take-up roll loom, such as an E Model Draper loom, a 104x72 will not contract in width probably more than 4 per cent, and 96x64 will

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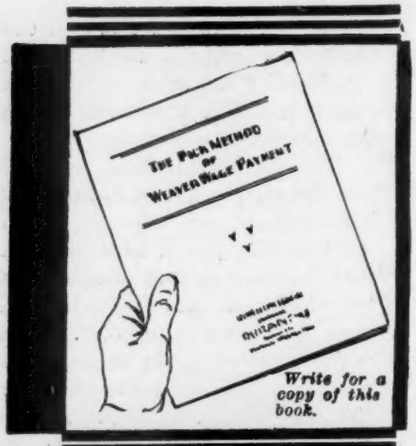

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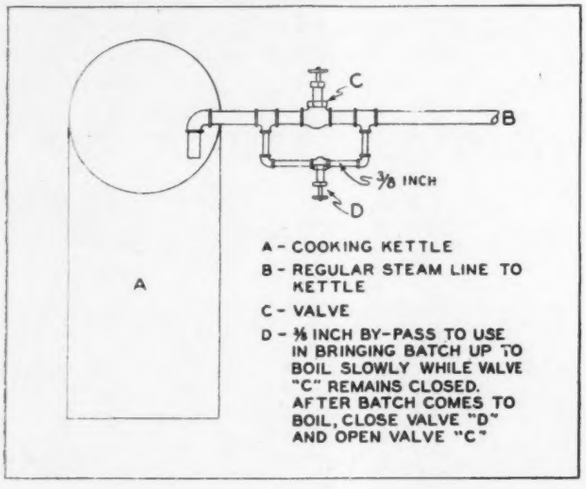
probably not vary from this more than ½ per cent either way. Let it be distinctly understood that no set rule can be given for contraction on account of the great variation in local conditions, such as loom tension, relation of warp number to filling number, etc., etc.

I have known of mills ordering reeds to allow the same contraction in the width of the warp on broadcloth as they were having on regular print cloth or sheeting weaves. Then when they put on the first warp, they were surprised to find the cloth too wide, without the full number of ends per inch in the cloth. When you put 96 to 104 ends per inch in the warp, it will not contract as much as 76 or 80 ends per inch.

The warp contraction in length will probably be close to 8 per cent, depending greatly upon the loom tension.

A man should experiment with the height of the whip roll and the take-up roll, until he finds the position that will give him the best running warp.


C
B
⅜ INCH
D
A
A - COOKING KETTLE
B - REGULAR STEAM LINE TO KETTLE
C - VALVE
D - ⅜ INCH BY-PASS TO USE IN BRINGING BATCH UP TO BOIL SLOWLY WHILE VALVE "C" REMAINS CLOSED. AFTER BATCH COMES TO BOIL, CLOSE VALVE "D" AND OPEN VALVE "C"

This man also wanted to know what would be a good size formula to use on broadcloth warp. A formula used by one of the largest manufacturers of broadcloth in the South is, 200 pounds of corn starch, 30 pounds of a good sizing compound, 15 pounds of tallow. The method is as follows: In a 216 gallon kettle, draw 144 gallons of water. Add the starch by pouring in very slowly. If the starch is poured into the water too fast it will lump. Be sure the water is comparatively cool, not hot. Hot water will invariably lump the starch.

Next add the gum and tallow, and agitate for 20 minutes before turning on the steam. Turn the steam on through a ⅜-inch pipe (see the accompanying sketch) so that the starch will be brought to a boil very slowly. It should take at least 30 minutes to bring the starch to a boil.

Cook at least 45 minutes after it comes to a boil; 60 minutes will not break the starch down and is not too long to cook, especially if the kettle will be used up in two to four hours.

The 144 gallons of water plus the starch and the condensation from cooking fills the kettle of 216 gallons.

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If the kettle does not fill up by the time the size has been cooked for the 45 or 60 minutes, it is perfectly all right to draw in cold water to make the required number of gallons or to fill the kettle. Then turn the steam on again and the batch will quickly boil. The consistency of the batch causes it to hold heat, and a few gallons of added cold water is quickly brought up to the heat of the whole batch. This formula will size the broadcloth pretty heavy, and if it is found to be too heavy, the proportions of the ingredients can be cut down.

CONTRIBUTOR NO. 4680.

EDITOR COTTON:

Recently you published some questions from "G. W. (GA.)" with reference to weaving broadcloths. He wanted to know whether it is practical to run four harness, with two working together, on these goods; the method of drawing in the warp; an explanation of staggered cams; the percentage of contraction on broadcloth; and a good size formula.

With reference to running broadcloth with four harness, letting two harness act as one, I would advise that, if he uses cotton harness, this is the only correct way to run it. Having halved the yarn on one shade which has two harness tied together, has the same effect as staggered cams, in that the two sheets of yarn passed the other two sheets of yarn at different times.

The other way to run it is by using the double bar steel heddle harness. Here you have the same effect as two harness tied together, as you would have when using two cotton harness put together.

The warp drawing-in pattern is 1-3-2-4.

I have never used staggered cams on broadcloth, but always got excellent results, when using cotton harness, with the plain cams, using two harness tied together as one. This will give the same weaving effect as the staggered cams.

I have found that the percentage of contraction of warp on broadcloth runs from 8 to 10 per cent. The size formula will depend a lot on local conditions, but we have never been able to weave successfully broadcloth with less than 15 per cent regain of warp due to sizing.

CONTRIBUTOR NO. 4678.

EDITOR COTTON:

This replies to the questions which you recently published with reference to weaving broadcloths. I will give my opinions on each one of the points brought up.

In my opinion, it is practical to run broadcloths on four harness, with two working together, but it is my opinion that a man would get much better results by staggering the cams. When the cams are staggered, I am sure your readers will understand that it will be necessary to stagger the warp draw, and this is accomplished by starting in at the left side, 4, 3, 2; 1, 2, 3; 4, 1, 2, and so on. This is drawn three threads to the dents.

By staggered cams is meant that the first and third harness work together and the second and fourth do likewise.

With reference to the percentage of contraction on broadcloth, in weaving plain cloth, it should be borne in mind that the contraction of the warp yarn depends largely upon the number of picks around which the warp has to bend; also, that the contraction of filling yarn depends largely upon the number of warp ends around which it has to bend. Therefore, the contraction in 60-pick goods, or broadcloth, I find, will be about 6.58 per cent. As regards size, we would recommend 108 pounds of starch and 56 pounds of compound to finish 125 gallons of size. This size should be cooked about two hours.

A. T. (GA.)

Changing Cams to Prevent Sloughing Off.

EDITOR COTTON:

I have been reading from time to time, in COTTON, the discussions with reference to sloughing off on the filling in looms. I have noted with much interest the various causes stated for this in different mills and the remedies, and to contribute my part to the discussion, I am sending you herewith a diagram of a five-point cam which we are now using on our spinning frames.

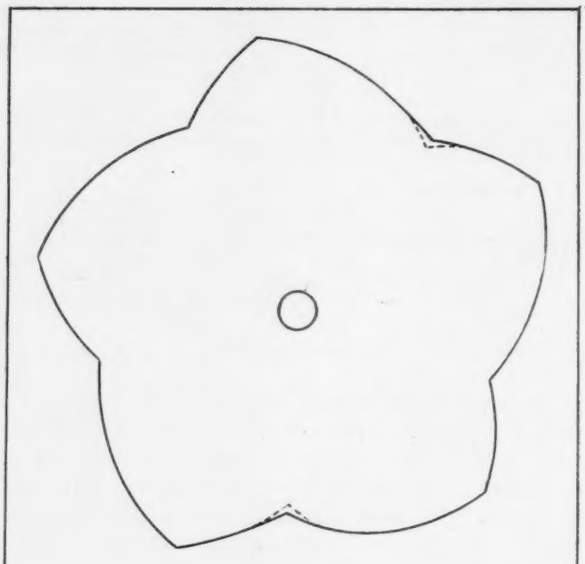
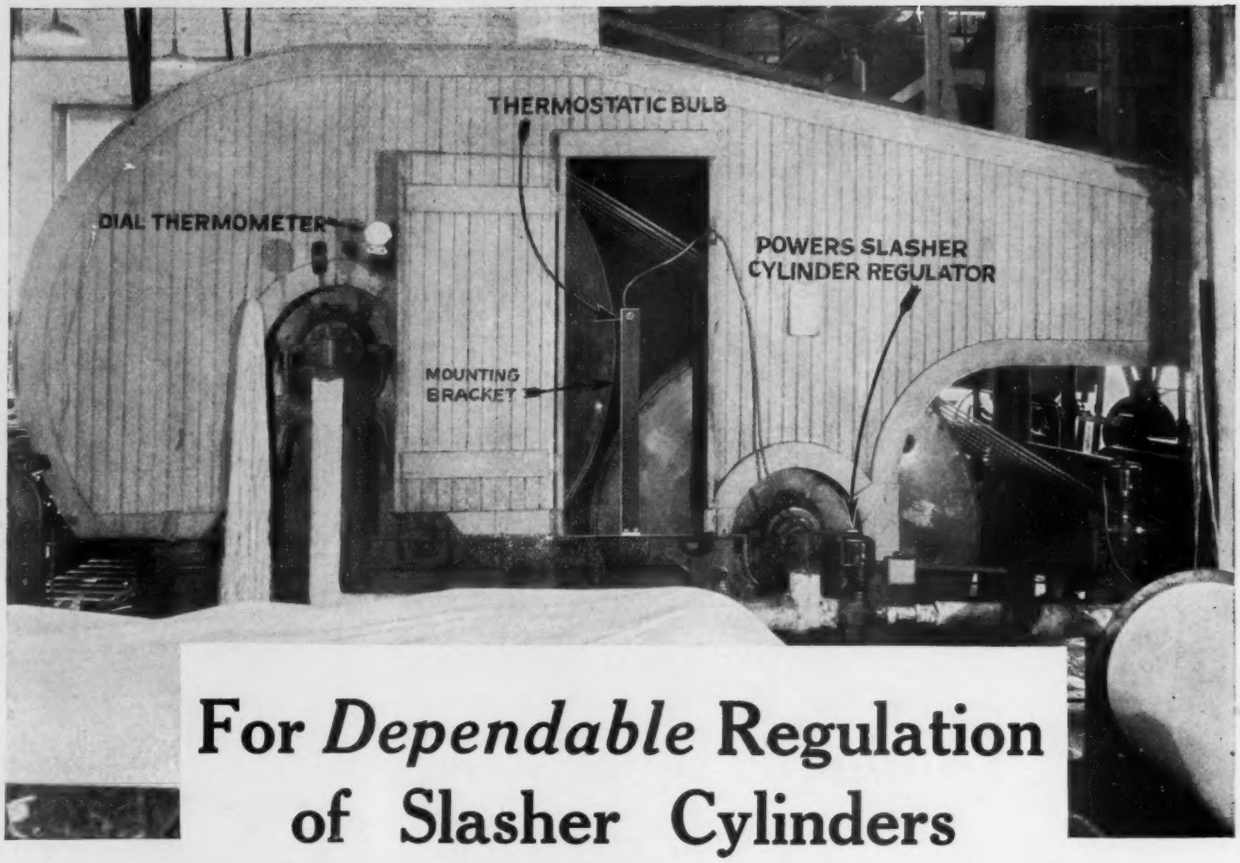


FIG. 1

Our spinning frames were equipped with three-point cams, and we had the same trouble of sloughing off that most every mill is having, so we changed to five-point cams with a little better result. To improve our filling further, we took each cam off and filed two of the hollows as shown by the dotted line in the illustration, Fig. 1. This is just enough so that our ring rail goes about 1/16-inch higher when this hollow cam comes in contact with the Pitman roller. This gives the quill the appearance of a doffer having kicked the rail up, but as it is run on the small part of the quill, it acts as a binder and will reduce sloughing off to a minimum.

This proposition will also work on three, five or six-



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point cams, and will be of help to anyone's filling wind warp also. We have tried it on numbers from 10s to 65s warp and from 12s to 45s filling, and it is equally good on all numbers.

I am sending in this idea to help anyone who may be having the trouble mentioned. I would be glad to see a further discussion on it.

J. M. (GA.)

Better Yarn—More Production.

EDITOR COTTON:

As I have often received many helpful suggestions from the discussion department of your magazine, in an effort to do my bit, I am sending you a few suggestions that I consider very essential for the making of better yarn, along with an increased production.

To obtain an increased production with less seconds and at a minimum cost, the cotton must be started right in the opening room and all the little things throughout the entire process watched. It is impossible for any overseer of weaving to obtain these desired results without good even yarn, and the only way to make this kind of yarn is to be on the lookout for the small things all of the time, and have the following conditions, existing, as near as possible, in the mill: Cotton having a uniform staple; a carder that knows how to grade cotton; opening of as many bales at one time as space will permit in the opening room; a responsible man feeding the hopper, whose duty it is to feed the hopper and keep the machine about two thirds full at all times.

This matter of feeding the hopper may appear to some a small one, but if we expect to get an even lap on the beater we must have an even feed from the hopper. The breaker laps should be weighed carefully at least three or four times each day by a man who can be depended upon and kept as near one weight as possible. Close attention should be given to the pickers, as it is very desirable that we make good even laps. Do not allow finished laps to vary in weight over a quarter of a pound either way. If a lap is too light or too heavy, have the picker man set it back and run it over, or the card sliver will be uneven and cause weak places in the yarn.

Cards.

In most mills the cards do not receive the attention they should. Bad work on these machines will show itself throughout the mill. The cards should be ground every ten or fifteen days with good grinding emery. The grinding rolls should be covered with new emery after ten or fifteen cards have been ground. If we expect the cards to turn off a good even sliver, free from foreign matter, we must run them at a minimum speed and keep the wires sharp. The licker-in must be kept in good shape and set as close as the staple will permit. A lot of uneven yarn is caused on the cards from split laps. If the lap splits and runs into the card double, the sliver will be too heavy. A reliable card hand should be employed and watched closely and made to get all the singlings or doublings out of the cans on front of the cards. The cards should also be kept clean so that dirt and trash won't get into the good stock. If the card hands are slack and allow the sliver cans to get too full the sliver will be stretched and be too tight. When stripping cards, my idea is to strip every other card and after they have run about an hour, then finish stripping. The sliver will run lighter immediately after stripping the cards than later, so by stripping half the cards at one time, only half the amount of light sliver is obtained that would be obtained by stripping all at the same time.

Drawing Frames.

Drawing frames are the simplest frames in the mill and for that reason they usually receive less attention. *These machines should be looked after very carefully.* The rolls should be kept in good condition and properly oiled. The stop motions should work perfectly at all times or we will get light and heavy sliver, which will make weak or uneven yarn. If a sliver breaks on the back of a frame or the cans run empty and the stop motion works a little slow, the result will be five ends up instead of six and the sliver on the front of the frame will be one sixth too light. On the other hand, if an end is lapped on the back of the frame for two or three inches—and lots of hands do this—there will be seven ends up instead of six, which will cause the sliver on the front of the machine to be one seventh too heavy. By the time this sliver reaches the spinning frame it will be stretched several inches and the yarn will be uneven and likely cause trouble through its entire process. A sharp eye should be kept for drawing hands who, when they get behind, try to catch up by slipping cans of sliver from the front of the first drawing to slubbers. It should be the duty of someone to see that all parts of the machines are oiled at the right time; that the weights are hung right and that there is plenty of weight on the top rollers; that the top and under clearers are picked clean once every hour; that all bad rolls are kept out of the frames, which rolls should be varnished at the proper time; that the drawing tender does not allow cans to get too full on the front of the frames, as this will stretch the sliver and cause bad yarn. If cam stop motions are used, it should be seen that they are in good working order. The drawing sliver should be sized at least every two hours and the draft gear changed if the weight isn't right. If all numbers are kept on drawing and things watched closely at this point, it will hardly ever become necessary to change draft gears on the fly frames or spinning frames.

Fly Frames.

Slubbers, intermediates and speeders must receive close attention if good even roving is made. It is possible for the picking, carding and drawing to be almost perfect and yet have bad, uneven roving made on the fly frames. The rolls on the fly frames should be cleaned once each day, watched closely and oiled regularly. The bottom steel rolls should be taken out of the frames and cleaned thoroughly with

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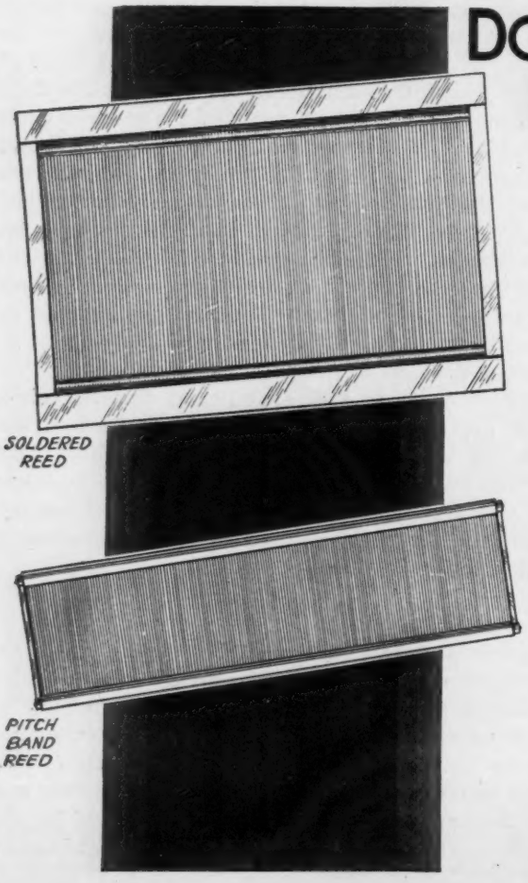

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card clothing and whiting once a year, more often if necessary. It is necessary to keep the flutes clean on all steel rolls if good even yarn is made. The roving must have enough twist to prevent its breaking in the creels. If too soft, it won't have strength enough to pull itself and the result is the roving will stretch or break and make bad yarn. The tension on a fly frame is another important matter and should be watched very closely by the overseer himself, for if the tension is too tight the roving will be uneven and full of thin places, if too slack, it will wind too loose on the bobbin and make a soft bobbin and this will break back and stretch in the creel at the next process. This means uneven, bad running work through the remaining processes. Special care should be given to the creeling of intermediates and speeders, as bad creeling means uneven, bad yarn. Every doubling and singling made on fly frames means bad running spinning, weak and heavy yarn.

Important Things to Watch Around Fly Frames.

Attention should be given to see that the roving traverse works freely and makes full strokes. The frames should be lined and leveled every eight or ten months. All worn bolsters and spindles should be kept out of the frames, and stops should be oiled at least every two weeks. Roving should not be allowed to wind around the back steel roll, as this will raise the top leather roll and stretch the roving. The frame tender should not be allowed to run the frames too full, as this will chafe and cut the roving, which will result in bad yarn. Bad bobbins should be kept off the spindles, as a bad bobbin will vibrate and make the roving uneven. A good section man should be employed who will keep all bad rollers out of the frames, as bad rollers mean bad work. It is a bad policy to ever put a new roller in a frame without oiling it, as well as bad policy to allow frame hands to fan off, as the flyings will get on the good stock in process and make lumpy, bad roving. Spindles should be oiled every Monday and Thursday. A good overseer will watch these things carefully.

Draft in Card Room.

If good running work and even roving is to be obtained, then drafts must be right at each process. For a 4.50 hank roving on speeders, made from 1-inch staple cotton, I would advise the following drafts: 98 on cards, 6 on drawings, 4.35 on slubbers, 5.35 on intermediates, and 6.00 on speeders. The writer has studied this and can say that mighty good results were accomplished.

Spinning Room.

One of the most important things in the spinning room is to keep the frames clean. As to what kind of yarn we turn out, the carder may make almost perfect roving and if the spinning room overseer doesn't watch and look after the cleaning at this point, bad yarn will be the result. The frames should be lined and leveled every eight or ten months. The roving creels must be level and in line so that there won't be

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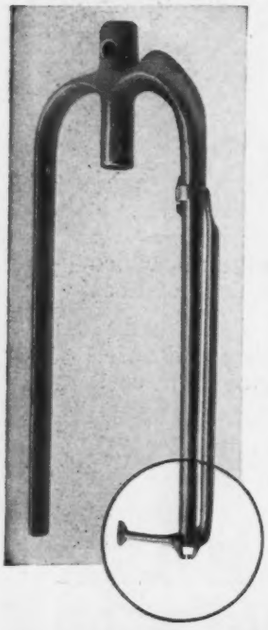

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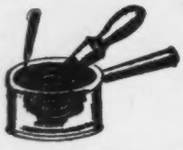

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any undue pull on the roving. The oiling is a very important thing to be looked after, and special attention should be given to the top rolls, which should be oiled and looked after at least twice each week by a responsible man. Spindles should be oiled every three weeks, as a dry spindle will vibrate and make uneven, bad yarn.

Banding.

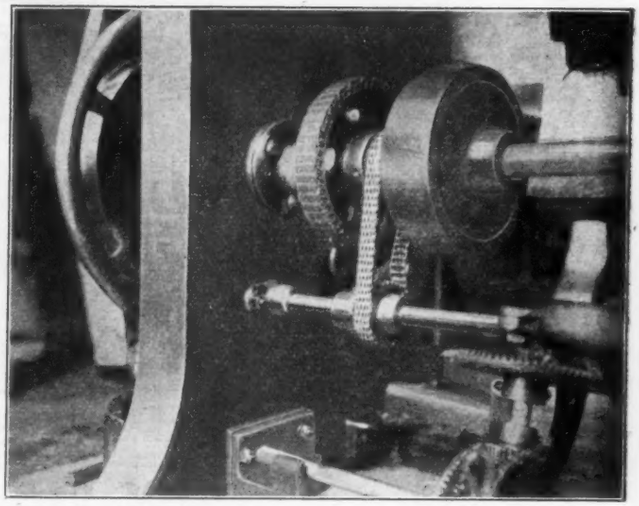
The bands on a spinning frame should be tied on by some particular person, and one who can be relied upon to do good work, for a slack band will reduce the speed of the spindle and make soft, uneven yarn. This is a good job for some middle aged man. The bands should be made of roving and weigh about one pound per 110 bands. It is a bad idea to make bands out of yarn, as a yarn band will stretch and fail to come off when it first gets slack, which, if it continues to run slack, will cause soft yarn to be produced.

Bobbins.

The bobbins not fitting down tight on the spindles, is something that is overlooked by many overseers. In some cases the bobbin is not made to fit the spindle by the bobbin manufacturer, while in other cases the bobbin gets stopped up and is not pushed down tight on the spindle as it should be by the doffer. Either will cause soft yarn and complaint will be forthcoming from the customer who buys the goods.

A Few Things To Do and Watch in the Spinning Room.

The spindles should be plumbed and set in the center of the rings, and the guide wires set at the top of spindles. All bad spindles and bolsters should be kept out of the frames, as well as guide wires that have grooves worn in them. The roving creels should be kept in line and perfectly level, and it should be seen that the bottoms of the roving sticks are not worn blunt, as they must turn freely at all times or the roving will be stretched, thereby making bad yarn. When bobbins have become too worn they should be discarded, as they will vibrate and cause uneven yarn. It is a good plan to have the roving creels wiped once each day, for if lint and cotton are allowed to collect around the end of the roving stick, it will be hard to pull and the stretching of the roving that will take place will cause bad yarn at this point. All top rolls should be picked every day, for dirty rolls will certainly make more uneven yarn than anything else in the spinning room. A good overseer will inspect all rolls once a day and see that all bad or worn rolls are kept out of the frames, as a bad roller can't make anything but bad, uneven yarn. All of the guides should be run or wiped out every 30 minutes. If lint is allowed to collect at this point, it will catch on the yarn and show up in lumps, thereby causing it to hang up in the thread guides on the spoolers and break or stretch the yarn. All travelers should be changed every three or four weeks, as a worn traveler will cut and chafe the yarn.



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ALL SIZES FOR ALL PURPOSES
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Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

A Compound that has never given any trouble at the finishing plant. Will give a good increase in tensile strength. This Compound and our Service will give the feel and weight desired.

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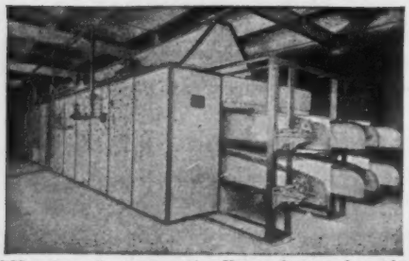
Moderate Temperatures — Uniform Drying — Low Operating Costs



"Hurricane" Automatic Yarn Dryer for the "Final" Drying of Rayon.

THE feel of any yarn, whether it be silk, rayon, cotton or wool, is benefited by air drying at low temperatures. In the "Hurricane" Dryer, currents of warm air are so distributed that all of the yarn is dried *thoroughly* and *uniformly*. A Conditioning Unit can be operated in conjunction with the Dryer in order to improve the quality and the feel, and to establish a definite moisture regain.

Also—Stock Dryers; Automatic Loop Dryers for piece goods; Electric Hosiery Forms.

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185

By allowing the roving to wind around steel rolls and staying there, the top leather roll will be raised and uneven yarn will be the result. Bad yarn is also made when lumps of cotton are allowed to gather in the trumpets. Worn rings should certainly be kept off the frames, for it is impossible to make good yarn on bad rings. The spinners should not be permitted to allow three strands of roving to run into one end when only two are required. Doffers should be made to piece up as soon as the frame is started after doffing, as a lot of doublings and choked rolls will be saved by so doing.

On filling frames that have no bunch builders it is my idea to pay doffers by the hour instead of the spindle, as this will be worth its weight in gold in the weave room.

I am sorry to say that there are today overseers of spinning who, with the cost sky high and the superintendent raising the devil with the boss weaver about production being so low, are sitting back depending on the second hand and fixers to run their job, where if they would only get on the job and see that the yarn is made right in the carding and spinning departments there would be little trouble in the weave room.

CONTRIBUTOR No. 4651.

Questions on Spinning and Carding.

EDITOR COTTON:

I am in trouble, and I am going to shoot some questions at your spinners and carders, hoping that their answer may prove the means of my overcoming my difficulty.

The first question I would like to ask is: "If the spinning rings become worn, does this have a tendency to weaken the yarn?"

The writer has had quite a few talks with mill men and some said that it did not weaken the yarn, while others claimed that worn rings do weaken the yarn.

We have some rings that were put in the mill during the last twelve months that have shown signs of wearing extremely fast; so much so, that it is very easy to detect a wavy appearance on the rings, especially on the inside. This is a very important problem that I have confronting me and I hope that the spinners who read COTTON will not hesitate to offer some suggestions, for I have about 30,000 of these things to be worried with until the thing is settled. Personally, the way I feel about it is that they will all have to be replaced; that is, all of the worn ones, but golly! what a job that will be.

I would now like to ask the carders a question, "Do the traverse grinder rolls on the cards sharpen or grind the points on the card clothing, or does the clothing sharpen itself against the grinder rolls? I am speaking of the cylinder and doffer clothing."

Still hitting at the carders, "What experience have you had with vacuum card strippers, and do your cards stay sharp longer than when you stripped with the old time band and hand stripper?"

Then, too, I would like for some of our good carders to tell how often they oil their comb boxes, and how often they clean them out.

T. A. D. (GA.)

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(Division of the O. F. Zurn Co.)

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QUAKER PENETRANT for uniform and level dyeing of all fabrics including mixtures of silk, rayons, and mercerized.

QUAKER FRAGRANTOL, a deoderized oil which perfumes and finishes silk hose in the same bath, overcoming rancid odor in boxed hosiery.

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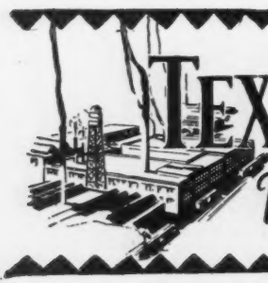
Other Continental Branches in ROUEN, GHENT, BALE, MULHOUSE, BARCELONA, TORINO, etc.



TEXTILE BOOKLETS *Worth Writing For!*

The booklets or catalogs briefly mentioned below may be obtained by any reader of COTTON who will write to the Company issuing them or to COTTON, Grant Bldg., Atlanta, Ga.

1. Cotton Picking, Carding and Spinning—Covered by three different catalogs. Picking catalog covers Opening and Picking Machinery; Card Room catalog covers Cards, Combers and Roving Frames; Yarn Machinery catalog covers Spinning, Twisting, Spooling, Quilling and Reeling. By Whitin Machine Works, Whitinsville, Mass.

2. Pepperell Equipment—10 page illustrated booklet, showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments. Installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor—Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

5. The Bahnson Master Control—Bulletin No. 301, 5 pages. Illustrated. Automatic device designed to control humidifying equipment so as to maintain a constant relative humidity. By The Bahnson Company, Winston-Salem, N. C.

6. "Cotton" Weather Vein, 32 pages; "Rayon" Weather Vein, 40 pages; house publication, illustrated. Bulletin 58, 80 pages, illustrated; **Manufactured Weather**—the automatic control of air conditions within buildings. Carrier Engineering Corporation, Newark, N. J.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

11. Whitinsville Rings—16 page illustrated booklet. Describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville, Spinning Ring Co., Whitinsville, Mass.

12. The Pick Method of Weaver Wage Payment—Booklet, 20 pages. A practical manual giving full information and tables on this method of payment. By the Durant Manufacturing Company, Milwaukee, Wis.

13-A. Equipping Modern Textile Plants—Booklet, 35 pages, illustrated. Describes value of Monel Metal equipment in textile plants and presents reports from mill owners and operators on actual experiences; equipment, descriptions, etc. International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

13-B. Dyed in the Truth—Vols. I and II. Reprints of advertisements of special interest to textile dyers. Describes equipment and uses of Monel Metal in meeting metal problems of the industry. The International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

14-A. Fuses for Electrical Circuits—Leaflets illustrating and describing the TRICO Powder-Packed Renewable Fuse; Non-Renewable Fuses of cartridge type; and "COLOR-TOP" Plug Fuses. Sent on request by Trico Fuse Mfg. Co., Milwaukee, Wis.

14-B. Fuse Pullers—Leaflet illustrating and describing an all fibre tool for pulling and replacing cartridge type electrical fuses. Write Trico Fuse Mfg. Co., Milwaukee, Wis.

15. Saving Labor, Material and Power in the Textile Industry—Bulletin No. 133. Illustrated. Controlling, Recording and Indicating Instruments in textile mills. Temperature, Pressure, Humidity, equipment layouts and descriptive applications. The Foxboro Company, Foxboro, Mass.

16. Tycos Instruments for the Textile Industry—Catalog, 84 pages, illustrated. Shows instruments for every application in the textile industry, specifications, prices, diagrams and installation data by Taylor Instrument Companies, Rochester, N. Y.

17. The Powers System of Thermostatic Control—"Slasher Room is Bottle-Neck of Textile Mill." 18 page illustrated booklet showing importance of proper treatment of cloth in slasher room and advantages of Thermostat over hand control. Also room temperature control illustrations. Issued by Powers Regulator Co., 2739 Greenview Ave., Chicago, Ill.

20. Bleaching, Dyeing, Finishing and Printing Textile Goods—70-page booklet containing interesting information on faults and methods in finishing goods, useful tables and definitions. By Bosson & Lane, Atlantic, Mass.

21. Warp Sizing and Composition of Cotton—Folder containing reprints of articles carried by textile publications of interest to progressive mill superintendents. By Seydel-Wooley Co., 748 Rice St., Atlanta, Ga.

22. Tragasol and Its Uses—Booklet, 60 pages, constituents and properties—Dissolving and preparation—sizing and dressing of yarns—cloth finishing—miscellaneous. By John P. Marston Co., 247 Atlantic Ave., Boston, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoe Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

27. The Seven Factors of Belting Economy—Booklet, 112 pages, illustrated, containing authoritative information on the economical layout, care and operation of belt drives. Chas. A. Schieren Company, 33 Ferry Street, New York, N. Y.

29. Guide to Better Packing and Shipping Methods—32 page booklet with useful information regarding binding, packing, sealing and car-loading. Issued by Signode Steel Strapping Co., 2620 N. Western Ave., Chicago, Ill.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York and New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

31. Aluminum Paint—The Coat of Metal Protection—Booklet, 46 pages. Illustrated. The protecting and light reflecting qualities of Aluminum paint; its advantages to textile industry; where it is used; specifications. By Aluminum Company of America, 2400 Oliver Bldg., Pittsburgh, Pa.

32. Flooring, Open Steel, Area Gratings and Steps—Folder, 6 pages. Illustrated. For platforms, walks and stairs; non-slipping. By Kerlow Steel Flooring Company, Jersey City, N. J.

35. Seating Equipment—Automatic, adjustable, ten inch height adjustment, all steel, mill and factory seating specialty, illustrated booklet, ten pages. Vitek Manufacturing Company, Omaha, Nebr.

36. Hosiery Inspection, Seamless and Full Fashioned—Illustrated folder. Also describes new Leg Examining Machine for full fashioned ladies' stockings. Edward R. Ammon, Reading, Pa.

39. Trend of Sales of Silk, Rayon and Cotton in the Piece Goods Departments; twenty-four-page booklet; prepared by DuPont Rayon Company in conjunction with National Retail Dry Goods Association. Copy furnished without charge by either of above. DuPont Rayon Co., 2 Park Ave., New York, N. Y

40. The New Competition in Color—20 page illustrated booklet. Discusses future trends in business and their significance, present trend toward fast colors in textile industry and opportunity this trend offers for increased profits if properly utilized. By Franklin Process Co., Providence, R. I.

41-A. Arizona Pima Cotton — Origin; planting, irrigation, picking, merchandising and distribution methods. By E. A. Shaw & Co., Inc., Boston, Mass.

41-B. Sudan Cotton—Growing districts; irrigation, merchandising and distribution methods. By E. A. Shaw & Co., Inc., Boston, Mass.

42. Factoring—Booklet, 11 pages. Summary of Factoring Service provided for Manufacturers of Textiles. By Textile Banking Company, 50 Union Square, New York, N. Y.

43. The Key to Atlanta—Booklet, 48 pages. Illustrated. Industrial information regarding Atlanta. By Industrial Bureau, Atlanta Chamber of Commerce, Atlanta, Georgia.

44. Points of Interest in and Around Atlanta—36 pages. Illustrated, describing places of scenic and historic interest in Atlanta in particular, and the Southeast in general. Atlanta Biltmore Hotel, West Peachtree, Fifth, Sixth & Cypress Sts., Atlanta, Ga.

WATER--
Its Filtration *and* Softening

By W. C. Dodson

WATER is too often considered as an incidental around the textile plant. In dyeing and finishing processes an ample supply of the right kind of water is essential to economical operation. In this article Mr. Dodson gives a non-technical discussion of a subject that may seem a bit too technical for the mill man. The equipment for treating water is applicable to both knitting and finishing mills of all types. A further article on this subject is planned for a subsequent issue.—THE EDITOR.

WHEN YOU ARE HOT AND THIRSTY, what is more refreshing than a brimming glass of cold sparkling water? But suppose the glass happens to be brimming with sea water. It may be cold and sparkling, but it is no good as a drink.

Just so with water for textile purposes. It may look absolutely perfect and there may be plenty of it, but with all this it may be just about as unsuitable for the dyehouse and bleachery as sea water is for human consumption. Its apparent suitability, and the fact that you have always used it, may indicate that it is all right, but it may also indicate that you have been having to use too much coal, soap and dyestuff; also that your re-dyes, kier stains, etc., are higher than they would be had you regularly tested and protected this vital commodity.

Good water and plenty of it is an absolute and positive necessity if textiles are to be perfectly and economically dyed, bleached or wet finished in any manner. There have been numerous articles on the subject recently in the various trade journals, and discussions of it at dyers' and chemists' meetings, but even with all this, water is still too often considered as an incidental. Manufacturers seldom have regular tests made of their supply—seldom give their filters or softeners a thought until serious trouble calls attention to how necessary *good* water is.

Just because water is in good condition this week is positively no indication that it will be next week. Hard to believe this? Well, it shouldn't be, because water is naturally very variable in quality as well as quantity.

This costly casualness with which water is too often considered is well illustrated by the two following cases, both of which occurred fairly recently.

A big bleachery was planned, built, partially equipped, and turned over to a receiver in bankruptcy, all in rapid sequence. It came about in this way: The country was known to be lacking in surface water, but artesian water was easily reached in vast quantities by the farmers, so artesian water was to be used by the bleachery. The building was finished and the machinery began to arrive before the drillers struck water. They had to go unusually deep and the drilling had been expensive, but at last a supply was tapped and it gushed forth at high pressure and in most ample quantities. Ample in quantity, but far from ample in quality. It was heavily charged with salt and alkali. And so great was the contamination that all efforts to use it were abandoned.

The life blood of a bleachery was tainted beyond cure and the curtain falls on one of the most complete failures imaginable.

Again, a textile processing plant was planned.

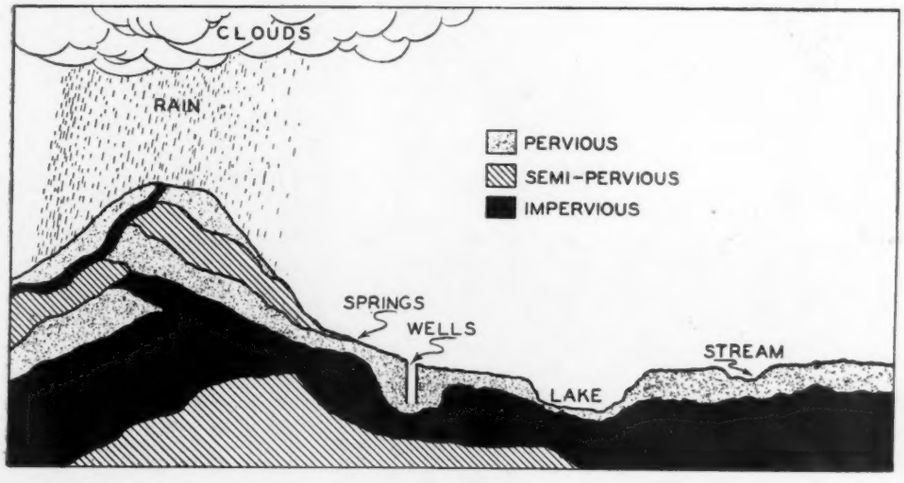
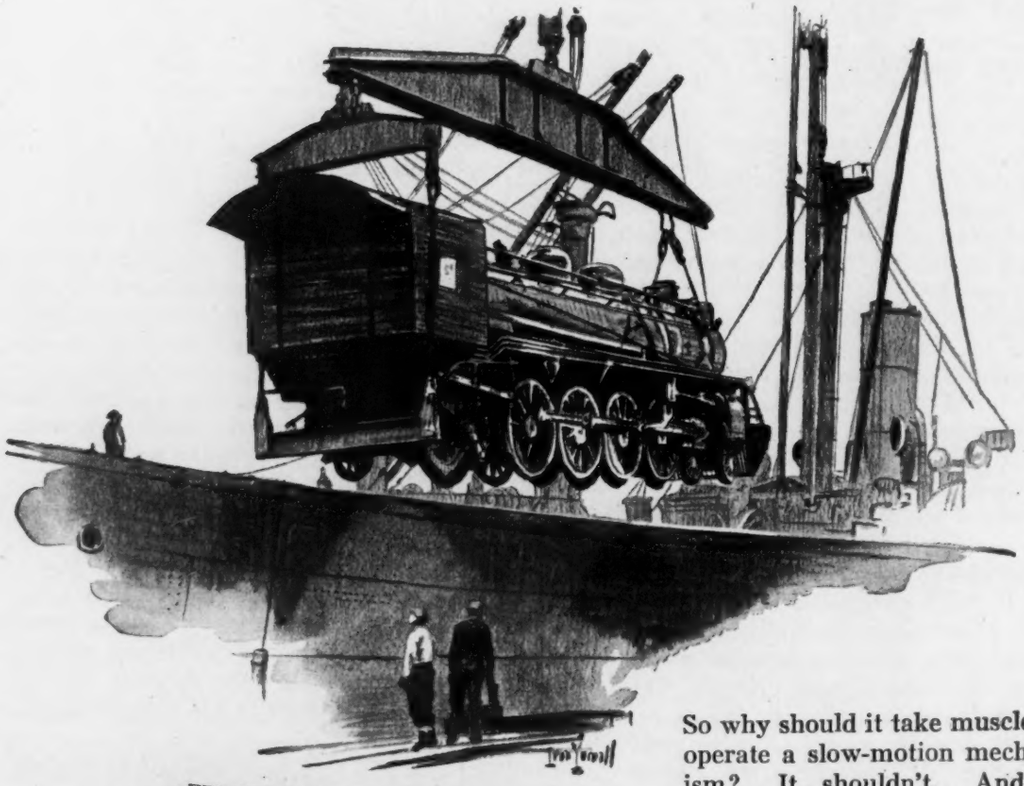
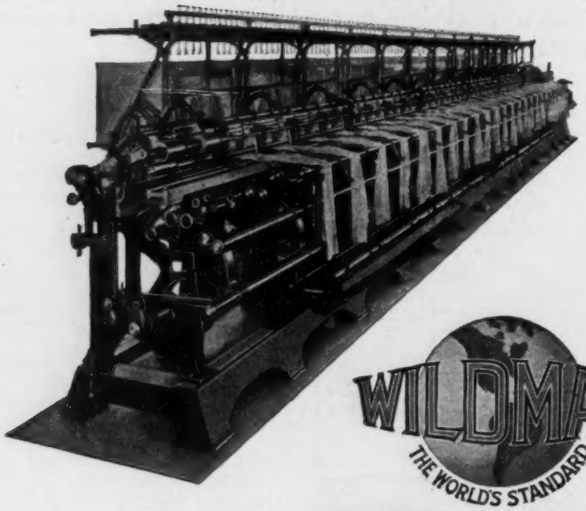


FIG. 1

Sketch showing generally the various strata through which water passes, and how it results.

It doesn't take muscle to lift a locomotive





So why should it take muscle to operate a slow-motion mechanism? It shouldn't. And it doesn't, in the new Wildman Full-Fashioned Hosiery Machine. A child could operate this new mechanism.

This is one of many interesting improvements incorporated in the new Wildman Machine.

Write for further information.

WILDMAN MFG. CO.
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Norristown, Pa.

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THE WORLD'S STANDARD

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FULL FASHIONED HOSIERY MACHINE

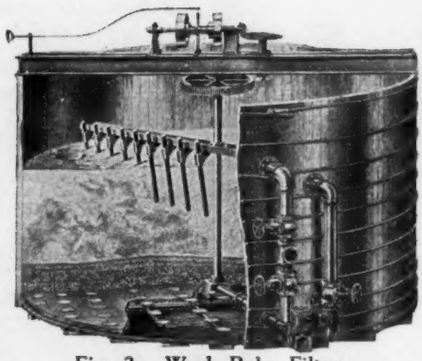


Fig. 2. Wash Rake Filter.
Courtesy, Hungerford & Terry, Inc.

This time, a mercerizing plant. Surveys were made, blue prints prepared by fine engineers and all necessary financial arrangements made before it occurred to someone to inquire into the water supply. The source of supply was a creek that had always flowed; summer and winter. But the rate of flow had never been measured. Water flowed, and that was sufficient evidence, apparently, on which to invest something like $500,000. However,in this case, the inquiry into the water situation went forward in time to save a serious monetary loss, but the dream of a big plant went up in smoke, when it was found that instead of the minimum requirement of a half million gallons per day being available, there was something near 100,000.

Sources of Water.

Now here are two cases, one in which there was plenty of water, but an incurably contaminated water. The other, in which there was good water, but not enough of it. Easy enough to see after these sad experiences are set forth, and nicely illustrative of the thing I have mentioned: costly casualness in regard to water.

With the exception of a few widely separated areas, there is some kind of usable water found nearly everywhere. The source may be any of the following: 1, surface water such as lakes and streams; 2, well water, shallow or deep, seeping or free flowing; 3, springs; and 4, rain, snow, hail, etc.

These sources are listed in the order in which they are most frequently used, but perhaps a good way to follow the movement would be to begin with the rain.

The sun evaporates the surface waters and the warm vapor rises until it strikes the cold of the upper atmosphere. Here it condenses in the form of clouds. Condensation continues until the right condition is reached and precipitation sets in.

The rain falls to earth, where some of it sinks to form the wells and springs, but the majority of it goes to make the lakes and streams. Then the "sun

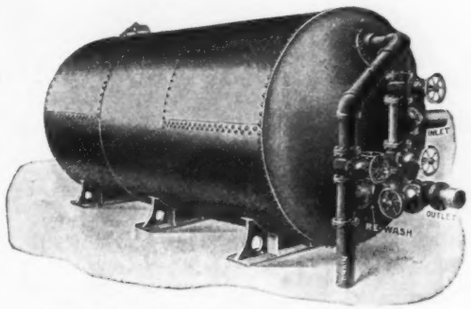


Fig. 3. Horizontal Pressure Filter.
Courtesy, Hungerford & Terry, Inc.

comes out and shines so hard it dries up all the rain." and the cycle is complete. The sketch shown as Fig. 1 should show the whole business fairly well.

Now, as you know, when the rain reaches the earth it comes in contact with the calcium, magnesium, iron and all the other elements in it. Some of

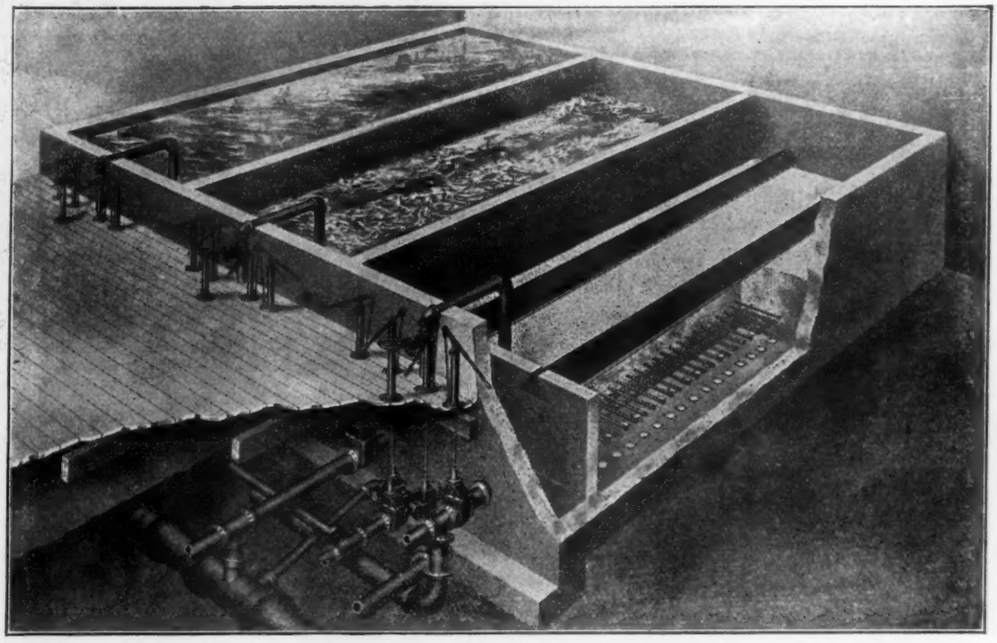
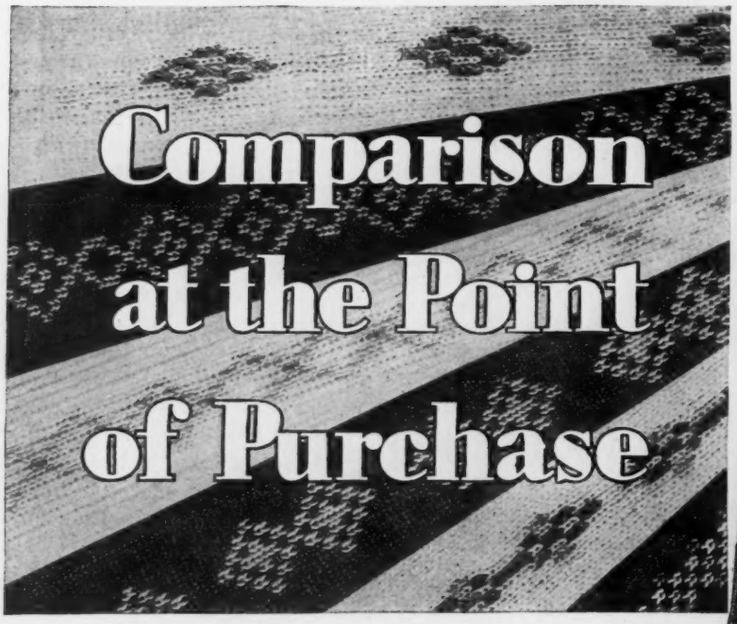
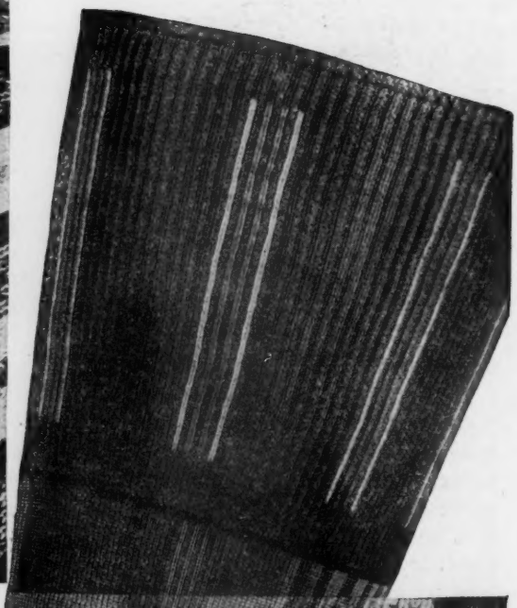
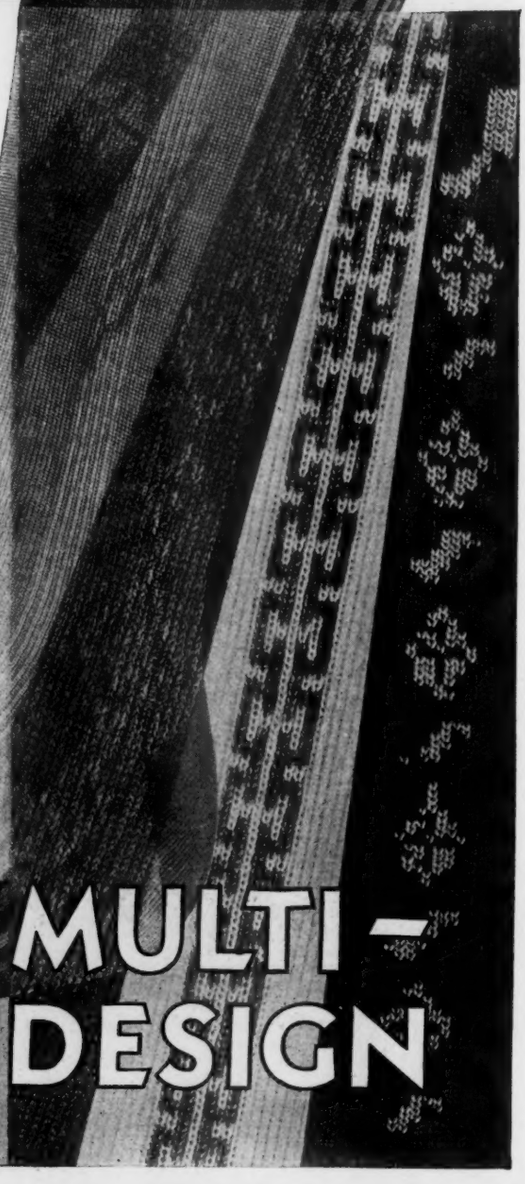


Fig. 4. Air-Wash Filter.
Courtesy, Hungerford & Terry, Inc.







may raise a peak or sink a valley in *your* sales curve, if you are marketing Men's Half Hose.

In that connection, how is your product faring *now* on dealers' counters—side by side with the attractive patterned FANCY TOPS which represent the latest style trend in Half Hose? As knit on Fidelity Multi-Design True-Rib Machines in countless combinations of the new quiet colors and designs, these FANCY TOPS can speed up *your* sales, too. Investigate now.

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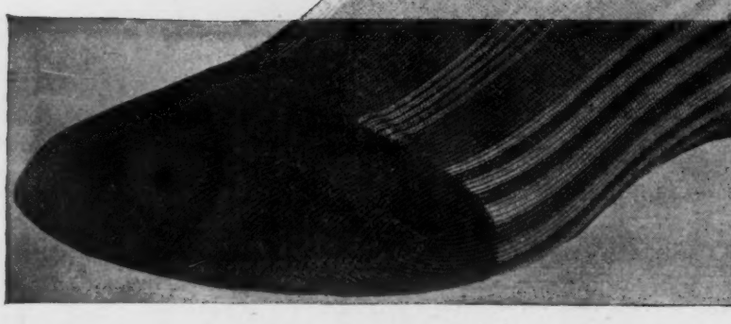


MULTI-DESIGN

these elements are rendered soluble by various impurities in the rain, as well as by their natural tendencies. If the earth through which the rain seeps, or across which it drains, contains calcium, magnesium, etc., then we may reasonably expect it to take on these elements in greater or less amounts.

Fortunately, the principal impurities with which the textile plants in the United States have to contend are mainly the soluble salts of magnesium and calcium, together with suspended matter which we may as well call mud. And the reason I use the word "fortunately" is that all of these undesirable qualities can be removed easily and cheaply by filtration, or softening, or a combination of the two processes.

Filtration.

Essentially, filtration is a very simple process. It is merely the passing of the water through a bed of sand, coke or charcoal. I have even heard of one textile plant in Australia using nothing more than a deep bed of excelsior.

Modern filters, however, use only sand, gravel and small stones, in layers, much as the earth filters all the water that soaks into it.

The container for the filter bed may be a cypress tank, a steel tank, or a concrete tank. The shape and size may be almost anything to meet individual needs. The principal thing is to have a water-tight container for the sand and gravel.

The accompanying cuts will illustrate the usual industrial types and the cross-section of the wood tanks, wash rake type filter shows very clearly the various layers of gravel and sand as well as the strainer system. Fig. 2 shows the wash rake type; Fig. 3 shows the pressure type; Fig. 4 shows the air wash type; and Fig. 5 shows an installation of a pressure filter piped up in direct series with a softener. In this illustration, the tank on the right is the filter, the one in the center is the softener, and the one at the left is the salt solution tank for use in regenerating the softener.

Water is admitted to the filter at a point slightly above the level of the uppermost layer of sand. It seeps downward until it reaches the strainer system, which is, in this case, a series of brass boxes. These strainers are in turn attached to small pipes which lead to one large outlet main.

With an outfit such as this, filtration will continue until gradually the suspended matter in the water clogs up the spaces between the grains of sand. It is then necessary to remove it. This process is known as backwashing and is carried out by admitting water under low pressure to the bottom of the filter bed, through the strainer system.

At the same time, the wash rake is revolved through the sand, loosening the sand and freeing it from its clinging coat of mud. This mud is carried off by the flow of the backwashed water, out through an overflow or backwash outlet. The whole operation requires about 30 minutes, after which the filter is ready for business as usual.

The pressure filters are backwashed by high pressure water entering the bottom strainer system. This pressure is sufficient to loosen the sand, and the mud floods off through the backwash outlet valve.

The air wash type is backwashed as explained, with the additional feature of compressed air being admitted through a series of perforated pipes in the bottom of the bed. The wash rake, the high pressure and the compressed air all serve the same purpose and are simply the various ways of loosening the sand bed. There are several reasons for the different types, but the principal one is that varying conditions have to be met with in different localities and different plants, and I do not intend at this time to go into what these varying conditions are.

Now that you have an idea of how and why a filter works, we will go backward a little bit and discuss the treatment of the raw or unfiltered water before it is admitted to the filter.

This water probably is heavily charged with mud and other finely divided material, else it would not be necessary to filter it. Certainly that seems fair enough. Well, anyway—it is pumped or flows by gravity into the settling tank, which is built of wood,

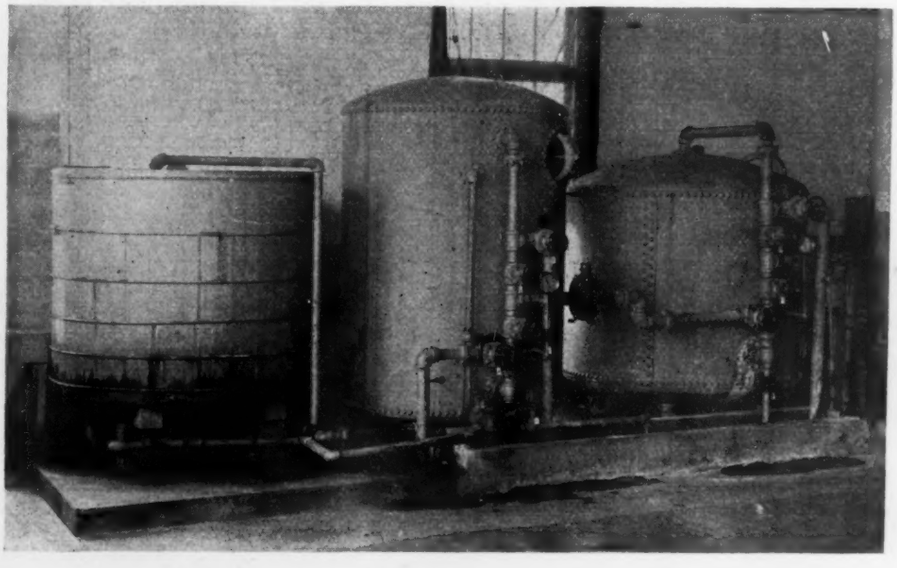
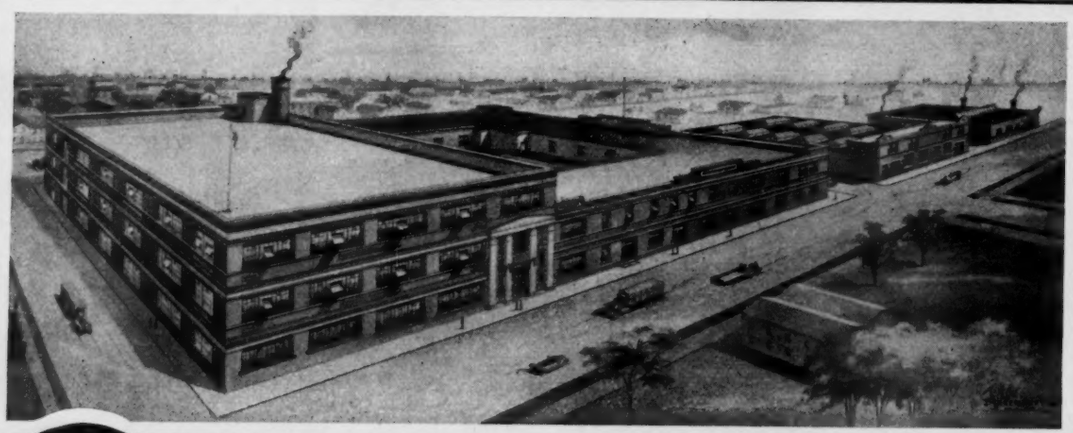


Fig. 5. A Pressure Filter and Softener.

TO MULTIPLY OUR SERVICE — A NEW PLANT



SCHUBERT and SALZER

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65 COURSES PER MINUTE

A new plant! What a story it tells of widespread acceptance of Schubert & Salzer machines by American Manufacturers.

Our clientele freely admit that our service from its inception has always been well above average. That is one outstanding reason why over a hundred American manufacturers are close adherents to the machines produced by the world's largest manufacturer of Full Fashioned Hosiery Machines—Schubert & Salzer. But, of course, the dominant reason lies in the absolute maximum in quantity and quality that type H. S. L. machines produce.

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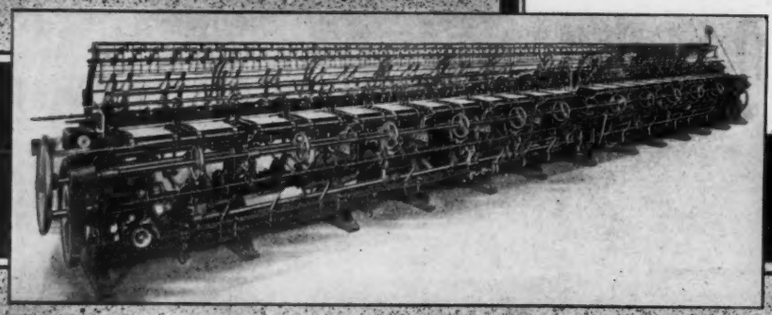

24 Sections ALL GAUGES

earth, concrete or anything *that is water-tight.* This tank is essentially like the sketch in Fig. 7.

As you see in this sketch, there are a number of baffles which cause the water to reverse its direction of flow. This slows its speed of travel, mixes it up to a certain extent, and causes it to drop gradually the most of its load of suspended matter in the first half of its travel.

But it wouldn't do this unloading were it not for the fact that a small trickle of alum water and another trickle of mildly alkaline sal soda are fed in as the raw water enters the tank. These two chemi-

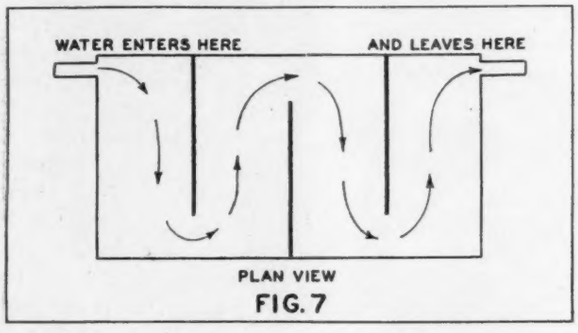

FIG. 7

cals react with impurities in suspension and with each other to form jelly-like particles by the million. These particles touch the suspended matter, stick to it, and slowly sink to the bottom.

As a consequence, the muddy raw water is very nearly clear by the time it leaves the settling tank. This leaves a minimum amount of work for the filter to do and when the water finally leaves the filter it is as clear as water ever gets to be.

In practice or operation, it is all even simpler than this may sound. I understand that there is plenty of chemistry and lots of funny formulae involved, but frankly, I am in no position to say yea or nay. I will have to leave that to those who know about such things. What I am trying to do is merely to give a working explanation of this important process.

Softening.

Now that we have filtered out the visible impurities and have bright clear water, it may be ready to use in the mill, or it may not. The strong likelihood is that it should be further treated by passing it through a softening system. This is especially true if the product of the textile plant is silk or wool. At any rate, we will assume that you want absolute soft or zero water as it is usually called.

That being the case, you buy a softener. And this outfit looks just like the pressure filter shown in Fig. 5. It is filled inside very much as a filter is, except that in place of the sand layer, there is a layer of a natural zeolite. This natural zeolite has just about replaced the former synthetic zeolite: first, because it seems better in all respects, and second, because it is cheaper. It is a greenish black sand found at comparatively shallow depths in many places on the Atlantic Coast from Maine to Florida. It has the peculiar and almost spooky power of taking from water which passes over it, all the minerals which make hard water hard. That is, it will exchange with the water, sodium salts for calcium and magnesium salts. The sodium salts in these small percentages will not affect the soap baths, whereas magnesium and calcium will form sticky, insoluble compounds. This sticky muck is the thing that causes so much trouble in the dyehouse and bleachery. of absorbing the calcium and magnesium, and if the water continues to pass, it will eventually emerge from the softener just as hard as when it entered.

However, before this point is reached, the flow is stopped and the zeolite is treated to a concentrated bath of sodium chloride, just common salt water. Almost instantly the zeolite is regenerated. It drops its calcium and magnesium and takes on a heavy load of sodium from the sodium chloride or common salt.

The surplus salt water and other impurities are washed out and the softener is again ready to go on delivering zero soft water. This procedure is repeated usually every day, or every other day, and requires about 45 minutes from start to finish.

Just what do you know of the actual condition of your mill's water supply? Why not call in one of thees water specialists and let him make an analysis of it? He will make no charge for this work. He will simply try to sell you a filter or a softener or whatever you need to correct the trouble. You can always refuse to buy, although I doubt very much if you will refuse if you keep in mind that water is the life blood of your dyehouse or bleachery.

Watch it carefully—check its purity and softness daily. And then check the improved quality of your work, the lowering of your soap and chemical bills.

Knitting Mill Notes.

THE STRATFORD KNITTING CO., women's rayon underwear and children's cottons, has removed from Philadelphia to Linfield, about 35 miles out from the city, where, operating an experimental plant showed, production cost is less and the labor situation more satisfactory.

A FULL-FASHIONED hosiery manufacturer purposes removing from Philadelphia for the same reasons that actuated the removal of the Stratford underwear plant, and is reported negotiating for a recently vacated mill property in Connecticut.

THE H. W. ANTHONY CO., Strausstown, Pa., is installing additional equipment in its full fashioned hosiery mill at Sinking Spring, near Reading, the new machines, 12 in all, to comprise 45- and 48-gauge.

THE HOWARD HOSIERY CO., Philadelphia, and operating a new plant also at Sinking Spring, has added "Inc." to the title and elected Robert Tait president, William Tait vice president and S. H. Scott secretary-treasurer. The company, incorporated last month, operates approximately 100 machines, 42 and 45-gauge.

SINGLE UNIT MACHINES, for knitting full fashioned stockings in one operation, eliminating topper and footer, are being equipped in the Gray-Line Hosiery Mill, at Eddington, near Philadelphia, with the attachments by which a legger is to knit leg and foot, for a practical demonstration in May, by Wilfrid Gray, owner of patents pending for the machine and the stocking.

WORK on a new full fashioned hosiery mill to have been erected soon near Doylestown, Pa., is reported by the engineers as having been held up indefinitely, and it is understood several projects are being held in abeyance pending a better market for full fashioned hosiery developing.

Dyeing *and* Finishing Rayon

Part Two.

By Noel D. White

THE FIRST ARTICLE of this short series, published in the January issue covered the nitro-cellulose type of rayon, and this month Mr. White discusses the cupra-ammonium, viscose, and cellulose-acetate groups; as well as touching upon the composition of different rayons, their manufacture, and affinities for different dyestuffs.

The third article, to complete the present series, will continue the discussion, and will be published in a forthcoming issue.

EDITOR COTTON.

SINCE THE ADVENT of the synthetic fibers into the textile field they were considered to have in general the same affinity for dyestuffs as cotton. The primary raw material used in making them being known to be of veegtable origin; cotton waste, bottom linters, wood pulp, etc., made the supposition quite correct, but the difficulties that the dyers encountered from the beginning when so little was known about their chemical composition, made them reluctant in accepting the new fibers until more could be learned about them. In those early days, to dye a lot of artificial silk was a job very few dyers dared to tackle, and not without good reason. Being rendered so weak and tender when in the dye-bath none but the very best and most careful workers could be trusted to handle the new fiber and when the job was finished, it was generally found to be more or less uneven in spite of all the care and pains taken in doing it. But those were the pioneering days and pioneering is never done over a path of roses.

The Cuprammonium Rayon.

Shortly after the nitro-cellulose yarn made its appearance another kind of synthetic yarn was introduced. It was claimed for this new fiber that it was more even in texture, softer, stronger and more easily dyed, but for the time being it found a cold reception. We were not yet ready to accept a second artificial silk when as yet we had not gotten acquainted well enough with the first one. Trials in the dyehouse however, proved conclusively that the newcomer was all that was claimed for it, but its reception was slow and its uses limited to decorations of fabrics, braidings and millinery.

While this new fiber was found to be nearly approaching the appearance of real silk, it had not as yet attained the state of perfection of the cuprammonium rayon of today.

The solution for making rayon by this process makes it possible to draw and stretch the filaments very fine.

The Viscose Rayon.

Another very important synthetic fiber to be successfully developed is that made by the viscose process. Started in the laboratory where experiments were being made to obtain a suitable fiber to be used as carbon filament for electric lamps, it was found that the fiber obtained by this process was strong and adaptable as a textile fiber.

After some improvements in texture and manufacture it was offered to the industry and accepted.

My first acquaintance with viscose rayon was in 1904 while visiting with a dyer in the East who made a specialty of dyeing rayons in those early days. He handed me a skein one day saying, "What do you think of this horsehair?" I had handled horse hairs in bunches occasionally, bleached and dyed them, but never had seen it in skeins. This looked like horse hair in feel and textile but, the length it had me puzzled. "What is it," I asked him. "This is artificial horse hair. If they can draw this thread as fine as artificial silk it will supplant all other kinds. It is stronger when wet than any other and dyes better than mercerized cotton." And that prophesy made in 1904 has come to pass. Many factories all over the United States are turning out viscose rayon today but, the demand for it is still above the supply of this important addition to the textile industry.

The Cellulose Acetate Rayon.

A synthetic fiber that may be said to be the leftover of the great war is that called the cellulose acetate. While experiments to obtain a fiber by that process were carried on as early as 1869 to find a suitable carbon lamp filament and some years before the war was known in the United States, it was after the war that this kind of rayon was successfully developed.

As a war material the solution of cellulose acetate was used in warfare, and during the war a factory was established in England to manufacture this essential war material. At the conclusion of hostilities this factory all set and going turned their efforts to perfecting their product into textile fiber.

In the first years of the last decade there was a great demand for yarn dyed and resisted to be used for decorating flannels and other textiles. When the war started and fast colors seemed to have become a thing of the past a search was frantically made for yarn that could be cross dyed and left uncolored. One day in a Boston office a business friend showed me a piece of dyed wool with a lot of threads stitched across which had remained white. "Here is a new resist we have found that will take no colors of any kind," he said to me. Then he showed me a skein of the stuff. To all appearances it seemed to be silk except the feel. Usually, when in doubt I tested rayon by wetting a thread and pulling it apart, but when on this occasion I tried that my friend laughed and said, "It is silk all right, not rayon. It is prepared by a special process and we sell the silk and not the process." That was

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Durene as manufactured by the American Yarn and Processing Co. is spun from carefully selected long staple cotton. Special processing increases its durability, elasticity, absorbency and its affinity for dyes. Investigate *Durene*, the *durable* yarn with the subdued *sheen*.

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AY&PCo

my first introduction.

This fiber has the distinction of having had the chemists of the whole dyestuff industry by the ears for a time trying to devise suitable dyestuffs that would dye it successfully and today that characteristic is not only entirely overcome but it is taken advantage of to produce easily some of the most beautiful effects in multicolored fabrics.

That the acetate rayon has been greatly improved since I first came to know it may be illustrated by a part of a skein that was given to me in 1919 for some experiments and which I had partly used up; some time later when I ran across those same samples I saw that the acetate rayon was crumbling out of the fabric. Upon investigation I found that it acted like carbonized cotton, it could be pulverized by squeezing it between the fingers.

The Composition of the Different Rayons.

While much has been written about how rayon is manufactured a few lines stripped of academic terms, chemical symbols and molecular formations just to explain the processes involved in the making of the different rayons, will make clear to the reader why not all kinds of rayon behave alike in the dyebath.

Cellulose is the raw material used for the four rayons described here which so far are those more widely used in the textile industry. Cellulose for this purpose is obtained from cotton waste, cotton linters, wood, straw and the like. From whichever source it is obtained it must be cleaned, purified and dried, preparatory to be transformed into rayon by one of the different processes.

For nitrocellulose the prepared cellulose is nitrated in a mixture of nitric and sulphuric acid and then dissolved in a mixture of ether and alcohol. This solution is then spun by squeezing it through fine holes and wound on bobbins from which it is there reeled. As the process of making this kind of rayon is similar to that used in making gun cotton the yarn is denitrated in a bath of sodium or calcium hydroxide and finally washed, soured, bleached and dried.

For the cuprannonium process the purified cellulose is dissolved in a bath of copper and ammonia or copper, ammonia and caustic soda and the solution thus obtained is carefully filtered and after the required time which may vary from twelve hours to three days it is spun into yarn by squeezing and stretching it through fine orifices and into a coagulating bath. The coagulating bath may be a solution of caustic soda or dilute sulphuric acid and the thread is wound on bobbins as it comes from the bath and then it is reeled in skeins, washed, bleached soaped and dried.

In making rayon by the viscose process, the cellulose is converted into alkali cellulose by steeping it into a strong solution of caustic soda for several hours and then pressed into a pulp. It is then transferred to a machine to be churned or kneaded with carbon bisulphide slowly added to it to the amount of about one per cent, after a few hours kneading it is again transferred into an iron-jacketed mixer where it is mixed with enough soda and water to produce a paste of the required viscosity in four to six hours. It is next blown into tanks in the ripening room where it is kept four to five days at a temperature of 60 to 65 degrees F. and is then ready to be spun.

The cellulose intended for rayon made by the cellulose acetate process is heated in a suitable jacketed mixer and stirred with a mixture of acetic acid, acetic anhydride and sulphuric acid or zinc chloride or some other ingredient used as a catalyst. This is called the acetylation and is carried on for a time varying between three hours and two days according to the temperature during the reaction, the composition of the acetylating mixture and the catalyst used. Before the operation is brought to an end, further addition of acetic acid is entered and the mixture heated and maintained at a temperature of 125 to 160 degrees F. for some hours and the cellulose acetate is precipitated from the mixture by diluting with water. It is then washed and dried ready to be dissolved in acetone or some other solvent ready to be spun.

Causes of Uneven Dyeing Rayon.

By what has been said, it can be readily seen why it is so difficult to dye rayon in level shades at all times. The chemical composition of the fiber may be subjected to a slight variation in the course of manufacture, a shorter or longer duration of ripening, a change in the temperature at some stage of the processing, cellulose from different sources, and last, and by no means least, the age of the finished rayon itself even from the same factory may cause a dyed lot to show different shades in the same batch. Rayon made by the same process and coming from different factories are also quite frequently a source of complaint when used in the same lot to be dyed.

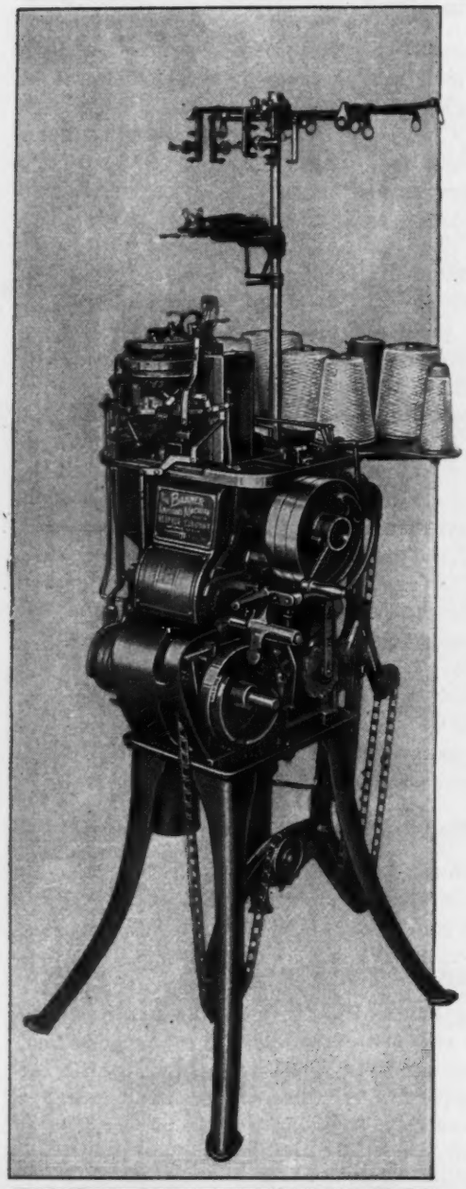
In our first attempt to dye rayon it was found that some uneven looking shades were caused by the thread not being evenly spun. Variation in the size of the yarn in the skein due to slightly different holes in the spinneret, over-bleaching of the thread, unequal stretching of the yarn in drying and imperfect washing out of the chemicals.

Manufacturing of rayon has greatly improved of late and many defects we had to contend with in the early days have been eliminated. Also dye-stuffs and dyeing methods devised, but there is still ground for improvements in both fields and will undoubtedly be done as the uses of rayon are increasing day by day and the trade is getting more exacting in every way.

The Affinity of Dyes for Different Rayons.

The chemical treatment to which the different kinds of rayon are subjected increases the affinity of the fiber to a considerable degree, but not for the same kind of dyestuff. As will be readily understood, viscose rayon, which is essentially a highly mercerized fiber, very naturally will have a higher affinity for direct colors and will dye deeper than mercerized cotton when both are dyed in the same fabric unless certain precautions are exercised. Viscose absorbs dyestuffs more readily at the boil while mercerized cotton in general is dyed best with the bath at a moderate temperature and when dyeing mixtures known to be

(*Continued on page* 581.)



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THE BANNER AUTOMATIC KNITTING MACHINES

THE PROBLEM of how to develop an interest in their work on the part of employees is a universal problem in industry—whether it's making hosiery or watch-springs.

In the accompanying letter to his son, OLD KNITTER gives some sound and logical advice to the young fellow in this connection. Knowing OLD KNITTER very well, we can assure you that his comments along this line are based upon an extended experience in hosiery mill work, and upon a successful experience in dealing with employees.

Please remember that you are invited to put yourself in SON'S place, and write OLD KNITTER a question about any subject upon which you would like to have his opinion.

EDITOR COTTON.

DEAR DAD:

I have not been getting the production from my machines that I ought to get, and I would like to have some suggestions from you as to how to build it up. It seems that a good many of my knitters are satisfied to make just so much and have no desire to go beyond that. I frequently see knitters wait until the whistle blows before they begin to oil up, and this means they are 15 to 20 minutes late getting started. The same thing happens at stopping time. I see them stop their machines when the whistle blows when they are ready to put in the heel tabs, rather than finish knitting the set.

I know this is not the right spirit and I want to know what to do to correct it.

Awaiting your reply with interest and with love to all, I am

YOUR DEVOTED SON.

DEAR SON:

Your letter asking for suggestions as to how to get your knitters to increase production is interesting. I know how to sympathize with you for I have had the same thing to contend with in the past.

In the first place, I should say that the way to begin is to get full of pep yourself. If you have been getting on the job just at starting time, move your watch up about 20 minutes. If you have been having the morning paper delivered to your office, have the address changed to your residence.

Then call in your key men, such as overseers and fixers, and ask them to assist you in putting some enthusiasm into your organization.

The next move is to have a conference with two or three loyal dependable knitters, and outline your program to them and ask them to run maximum production for a couple of weeks to set the pace for some of the laggards.

After this program has been working for a few days, then take special notice of those who are not influenced by it. If you see a knitter standing with his hand on the switch, watching the clock reach the exact second to start, you will know the poor fellow is a victim of the idea that he is such a force in the industrial world that he can, by slowing up and depriving himself and family of a comfortable wage, benefit every other worker in the industry. That kind of intelligence is hopeless.

The best way to handle him is to put some industrious chap with him as a helper to oil the machine before starting time, a man who is so anxious to learn to knit that he will finish out the set at stopping time. In a few weeks, you will find that this helper will run more dozens off of the machine he has learned on than the "clock knitter." Then give it to him.

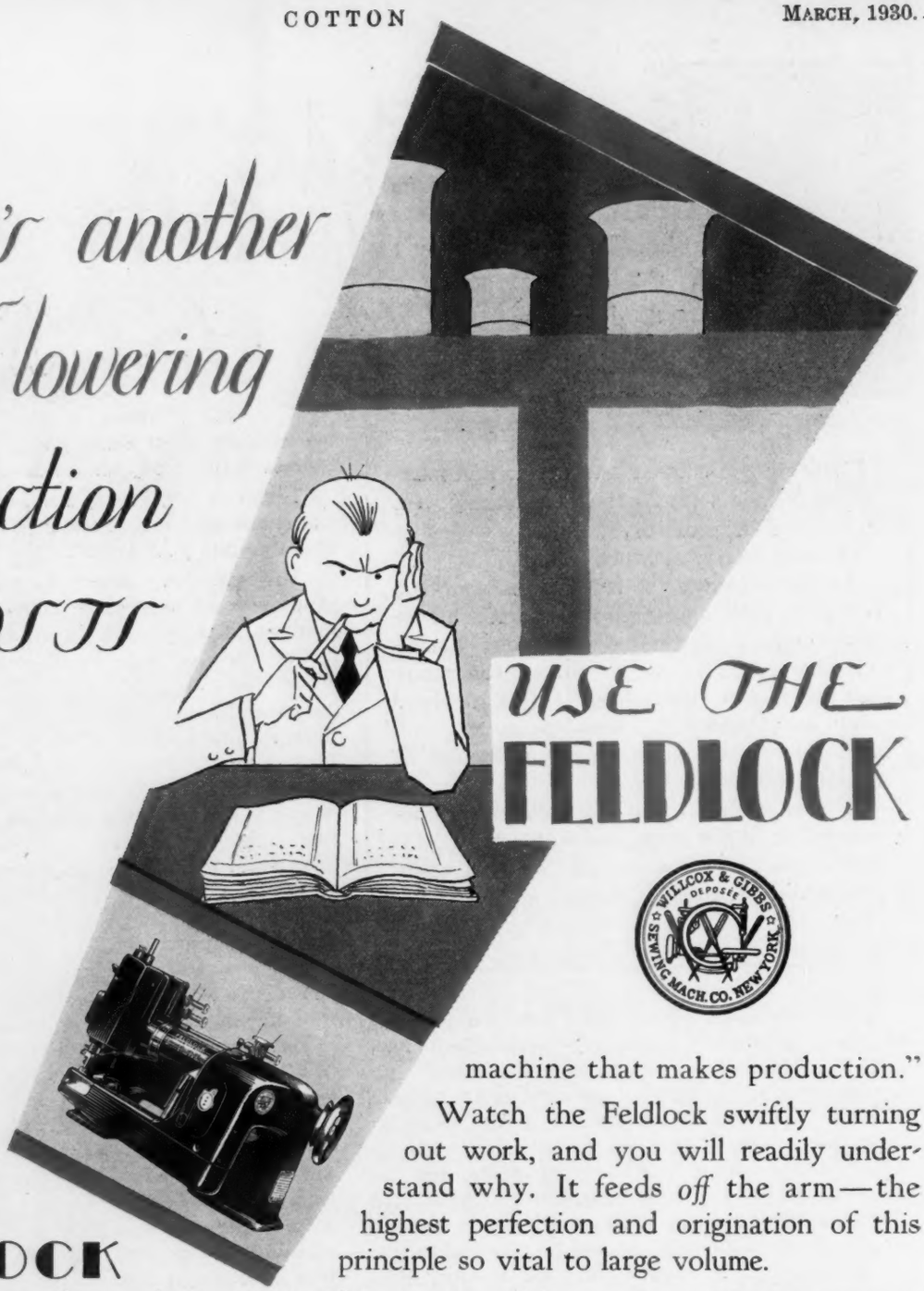
There is another class that is just naturally lazy. The best way to handle them is to get them interested in some kind of investment which will require larger earnings. My observation has been that a home is the greatest incentive to make a man work. Life insurance is a good investment for many of them. If these necessities don't appeal to them, just tell them they don't look prosperous riding around in a ramshackle 1927 automobile and that they ought to buy a new one. An industrious man, though extravagant, does more to keep the wheels of progress turning than the thrifty man who is lazy.

As a final suggestion, it might be a benefit to increase the piece-work rate. It is a known fact that the more a man makes, the more he wants to make. For example, a man earning $10.00 a day will work much harder to increase his earnings to $11.00 a day than the man earning $3.00 a day will work to increase his earnings to $3.30 a day.

Assuring you of my deepest interest in your success, and with love from all the family, I remain

YOUR DAD.

There's another way of lowering production Costs



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A History of Hosiery Inspection

By Edward R. Ammon

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PART SIX

THIS is the sixth of a series of articles on "The History of Hosiery Inspection," by Edward R. Ammon. The first article appeared in the August number, the second in the September issue, the third in November, 1929, the fourth in January, 1930, and the fifth in February, 1930. Subsequent installments will appear in later issues.—The Editor.

THE IMPORTANCE of correct inspection increased as hosiery became finer, more sheer, and more displayed by the wearer. Astute manufacturers recognizing this trend, in some instances displayed more zeal than caution and guaranteed their hosiery against defects unreservedly.

Unfortunately, in most instances, their inspection department operated the same as it had when cotton stockings were being made.

Pressure Was Brought on the Inspection Department.

The result was that in many instances profits were sadly curtailed and in exchange the manufacturer had a great pile of returned hosiery that had proved defective on wearing.

Naturally such a condition produced chaos, and many customers took advantage of the situation and made unjust claims against which it was hard for the manufacturers to protect themselves.

With such tremendous odds against them, manufacturers bestirred themselves diligently to overcome their disadvantage. As a result of curtailing the guarantee, much unpleasantness resulted, with disgruntled customers for the retailer and manufacturer.

Much pressure was brought on the inspecting department in the crusade against losses from returned hosiery.

Again a large number of firms stuck to hand examining, and many in their despair turned to either round or flat forms for drawing the hosiery over to secure a better inspection.

Many firms had their hosiery all re-inspected feeling that the additional cost would be quickly saved if they could secure relief from the evil of returns.

Almost over night this guaranteeing taught the women of America to demand perfect stockings, and also taught the manufacturer that purchasers would penalize them by buying another brand next time if they failed to replace defective hosiery that reached the consumer.

Another loss that assumed great importance as hosiery became more delicate, was that occasioned by unmended defects increasing to several times their original size when the stockings were de-gummed, dyed and boarded.

Had all defects been mended before dyeing, a large percentage could have been sold as firsts. The unnecessary seconds resulting from the enlargement of the defects missed by the inspectors, helped to reduce profits.

The result was that in almost every mill some one either wished for or tried to make some kind of device that would stretch the fabric better than it could be done either by hand or on any existing type of form.

This was to be expected as, with the more delicate hosiery, losses became greater and more and more was the importance of correct inspection realized, and pressure put on the inspecting department to find and mend all defects.

Dyeing and Finishing Rayon.

(*Continued from Page* 577.)

made of viscose rayon and mercerized cotton the best procedure is to start dyeing at 150 to 160 degrees F. and when the cotton is of the desired depth to raise the temperature of the bath to the boil and finish dyeing the viscose.

Cuprammonium rayon has about the same affinity for direct dyes as the viscose and the same procedure may be carried on in dyeing it.

The affinity of nitro-cellulose for direct colors, however, is much less than either viscose or cuprammonium rayon, but is greatly increased for the basic dyes and can be used in this fiber without any previous mordanting, while for cotton and the other two rayons mentioned can only be dyed with basic dyes after being mordanted with tennic acid and antimony salt.

Some direct colors can be diazotized and developed on rayons if care is exercised to prevent destroying the luster especially on some dark shade. The procedure is the same as with cotton, the only drawback being the time and handling necessary in dyeing by that method.

Sulphur dyestuffs up to the present time are not used to any great extent in dyeing any of the artificial fibers owing to the difficulties encountered in matching and obtaining level shades in a short time.

Vat colors are coming to be used quite extensively on all rayons for any purposes. The methods of application to the different rayons in the main are the same as for cotton and the dyeing obtained when fastness is required, are unequalled by any other line of dyestuffs.

Cellulose acetate cannot be dyed by any of the dyestuffs mentioned and by some are only partly stained. New dyestuffs and new processes had to be devised for this fiber. Dyes, dyeing methods and uses for cellulose acetate will be discussed at some other time.

Preventing Lint in Groove of Sinker Ring.

Some practical opinions on cleaning methods on Model K machines to prevent this difficulty. If you have another idea, tell us about it.

EDITOR COTTON:

In a recent number of "KNITTING KINKS," "CONTRIBUTOR NO. 4619" told of trouble he is having with his Scott & Williams Model K machines clogging up with lint around the groove of the inside sinker ring, causing, of course, streaked work. He pointed out that this trouble is more prevalent on mercerized and cotton styles, and that his present method of taking care of this trouble is to clean out the cylinders at certain intervals when they become bad. He asks for any improvements on this method of preventing this trouble.

The cleaning of cylinders on Scott & Williams Model K machines is necessary to prevent streaked work such as he mentions. This is an important factor in the knitting of an even fabric, and clean cylinders will run with lower needle and sinker breakage and with a higher production of first quality goods.

The length of time between cleaning periods should be governed by the conditions of the cylinders. This can be checked by inspection of the cylinders and fabric. It is costly to clean more often than necessary, as the machines are somewhat disturbed when the cylinders are removed for cleaning, and some do not settle down to production immediately.

Cleaning machines with compressed air is a great help, and with frequent use, the machines can be run a much longer time without removing the cylinders for cleaning. There are hose and nozzles made especially for this purpose. We are using a twin cylinder pump, 4½ x 4½, which pumps at 90 pounds pressure. It is driven by a 5 h.p. motor, and the air is pumped to a pressure tank 22 x 48 inches.

Machines using combed and wool yarn should be cleaned three times each week. Once a week is sufficient for silk styles.

Much work can be saved if the man operating the air cleaning hose is carefully trained. He should place a piece of card-board in the back of the cylinder head to protect the yarn from the lint and grease. The chain should be pulled to a position where it will not bring the pump links in contact with the pawl controller shoe. The machine should be stopped for cleaning after the press-off link has passed the shoe. Care should be taken in using air around the pickers and cam blocks so that broken butts are not disturbed.

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

These should be drawn out with a magnet. Lint and dirt that does not loosen up with the air should be picked out with a piecing hook.

The use of a high grade machine oil that does not become thick and sticky will eliminate a great deal of cleaning troubles. A cheap grade of oil soon becomes gummy and collects the loose lint from the yarn and this is difficult to remove.

One advantage of taking out the cylinders for cleaning is that they can be checked closely for broken and loose walls, defective sinkers, loose cams, loose sinker rings, sinker and cylinder bands and rough and worn cams.

We try to clean and check our cylinders once every six months on those machines running on silk styles, and twice every six months on machines that use material which has a large amount of lint on it.

CONTRIBUTOR NO. 4643.

EDITOR COTTON:

I imagine that everyone who has had experience with the Scott & Williams Model K machines has run into the difficulty of lint clogging up around the groove of the inside sinker ring, as reported in a recent issue of "KNITTING KINKS" by "CONTRIBUTOR NO. 4619." I have had experiences which agree with his, that this trouble, which causes streaky work, is more prevalent on mercerized and cotton styles. This man said that his method of taking care of this trouble is to clean out the cylinders at certain intervals, and he wanted some further suggestions, but the method he uses is the only system I know of for taking care of this. I would be mighty glad to see some other opinions expressed on this in the "KNITTING KINKS" department.

M. S. (TENN.)

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CHATTANOOGA, TENN.

Proper Size Seaming Thread for Model K.

A few suggestions to prevent large loops in the seam; and the best size seaming thread to use.

EDITOR COTTON:

In a recent number you published an inquiry from a contributor who wanted to know the proper size of seaming thread to use for a Scott & Williams Model K 3½-inch 260-needle machine. He pointed out that he uses 50s/3 and has difficulty with large loops while making the seam.

I believe that a 90s/3 mercerized is the right yarn to use, and as only a small quantity is used, the best grade of yarn should be purchased for this purpose.

With reference to his difficulty of large loops, special attention should be given to the free movement of the seaming yarn as it takes up underneath the dial. Polishing the dial to make sure that there is no obstruction on it will help. The length of the dial above the cylinder is also important. The settings should be made so that the dial bitts come out about 1/16-inch above the sinkers on the transfer.

The machine manufacturers have provided a means of allowing the machine to run on the transfer extra revolutions in order to clear the dial of any stitches that cling to the dial bitts before the seaming operation begins.

The welt presser is shoved in a little further at this time to aid in clearing the dial. A portion of the outside and bottom edge of the dial should be shaped to make the yarn float beneath the dial. This should be at the point where the floated yarn first comes in contact with the dial after the seaming needles pass the thread guide. The thread guide and take-up eyes should be examined carefully, as any which have worn grooves caused by the wear of the yarn sometimes will catch small knots and form loops.

CONTRIBUTOR NO. 4645.

Proper Number of Courses on Model K.

Two replies on this subject that will interest manufacturers of ladies' hosiery. Further methods will be welcomed.

EDITOR COTTON:

This is in reply to the question asked by "CONTRIBUTOR NO. 4616" in a recent issue of COTTON as to the proper number of courses per inch in a hose made of 8-thread silk in boot and 70s/2 mercerized in hem, the hose being made on a Scott & Williams Model K, 3½-inch 260 needle machine.

My experience has been that in knittnig seamless silk hose there can be no fixed standard to work by. As there are so many influences to reckon with, it would be impossible to work out a pattern chain that would be applicable to so many requirements.

For example, a stocking knit 27 inches in the grey to finish 29 inches on a narrow form like P-5L would only finish 28 inches in length when baorded on a wide form, such as P-6L. Then again, we have the P-8L foot measuring a full half-inch longer on a given size than P-5L. It is optional with the mill just what length they wish their goods to finish—they have a range all the way from 28 to 30 inches.

Another thing to consider is the way the goods are pulled on the form. One boarder will take a given length and pull it lightly on the form, while another will pull it taut. This will cause a variation of more than an inch in the finished length of the stocking.

All of these influences affect the courses per inch. A stocking boarded on a P-6L form, being shorter than the same stocking boarded on a P-5L form, will count more courses per inch than the stocking boarded on the latter form. Also, a stocking pulled lightly on a form will count more courses to the inch than it would if it were pulled taut to a longer length on the same form.

There are many influences to reckon with in knitting. A soft silk will respond to tighter knitting than hard silk; a machine in perfect condition, with new sinkers, new sinker cams and stitch cams will knit much tighter without bursting than one badly worn.

The ideal way to knit a seamless silk stocking, regardless of the number of strands, is to knit the foot and ankle as tightly as it will knit without shearing in the sole and high splice heel re-inforcing. The stitch should then be graduated looser for the calf and top to suit the form on which it is to be boarded and to produce the desired elasticity. No man can tell just what a silk stocking is going to look like until it is finished, but there should be a man in the knitting room so thoroughly familiar with gray fabric that he can approximate the proper number of courses in the first samples.

When I want to make up a new number I start in the foot and tighten the tension until the broken silk fibers begin to show, then I back up on the tension until the broken fibres disappear. Then, after putting links in the chain to make the size, I graduate the calf so as to prevent any noticeable break in the texture of the fabric between the calf and ankle. I then put links in the chain to make the leg long enough.

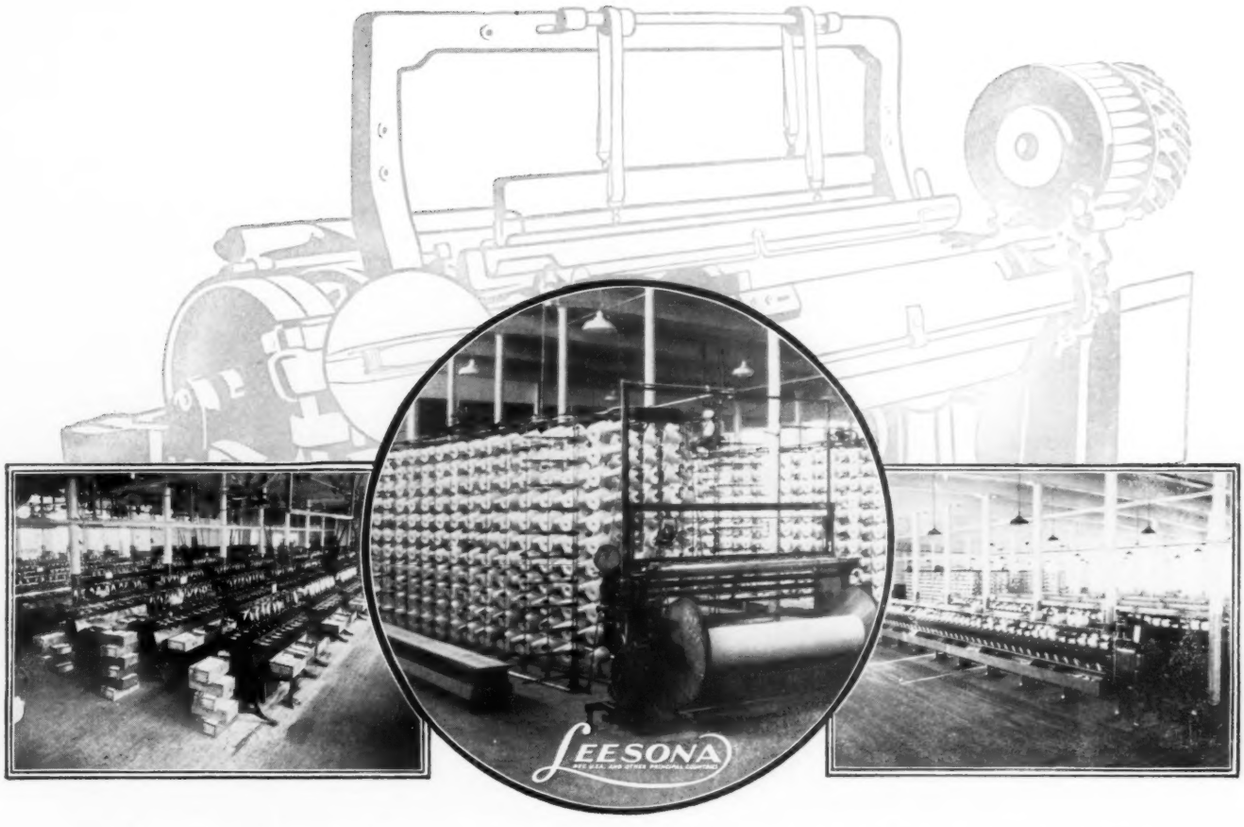
This to my mind is the ideal way to knit a seamless stocking, but in these days of keen competition we are forced to stray a bit from the ideal methods. We are inclined to put in just as few courses as we can get by with without making the stocking look too sleazy in the finished product—then pray that we may get cost out of it.

CONTRIBUTOR NO. 4677.

EDITOR COTTON:

"CONTRIBUTOR NO. 4616" in a number of COTTON some months ago asks the different knitters who read the "KNITTING KINKS" department what they would consider to be the proper number of courses per inch in a hose made on a Scott & Williams Model K 3½-inch 260-needle machine, with 70s/2 mercerized being used in the hem, 8-thread silk in boot and foot and 80s/2 mercerized in heel and toe. He wanted to get the proper courses per inch in each part of the hose, also the number of chain lengths used.

The accompanying sketch will give you my idea in answer to his question, and I believe this will give a good elastic stocking. Measurements as taken from machine, not finished. The stretches referred to in the sketch are made by taking the stocking with the hand on each side and pulling very hard along a ruler.



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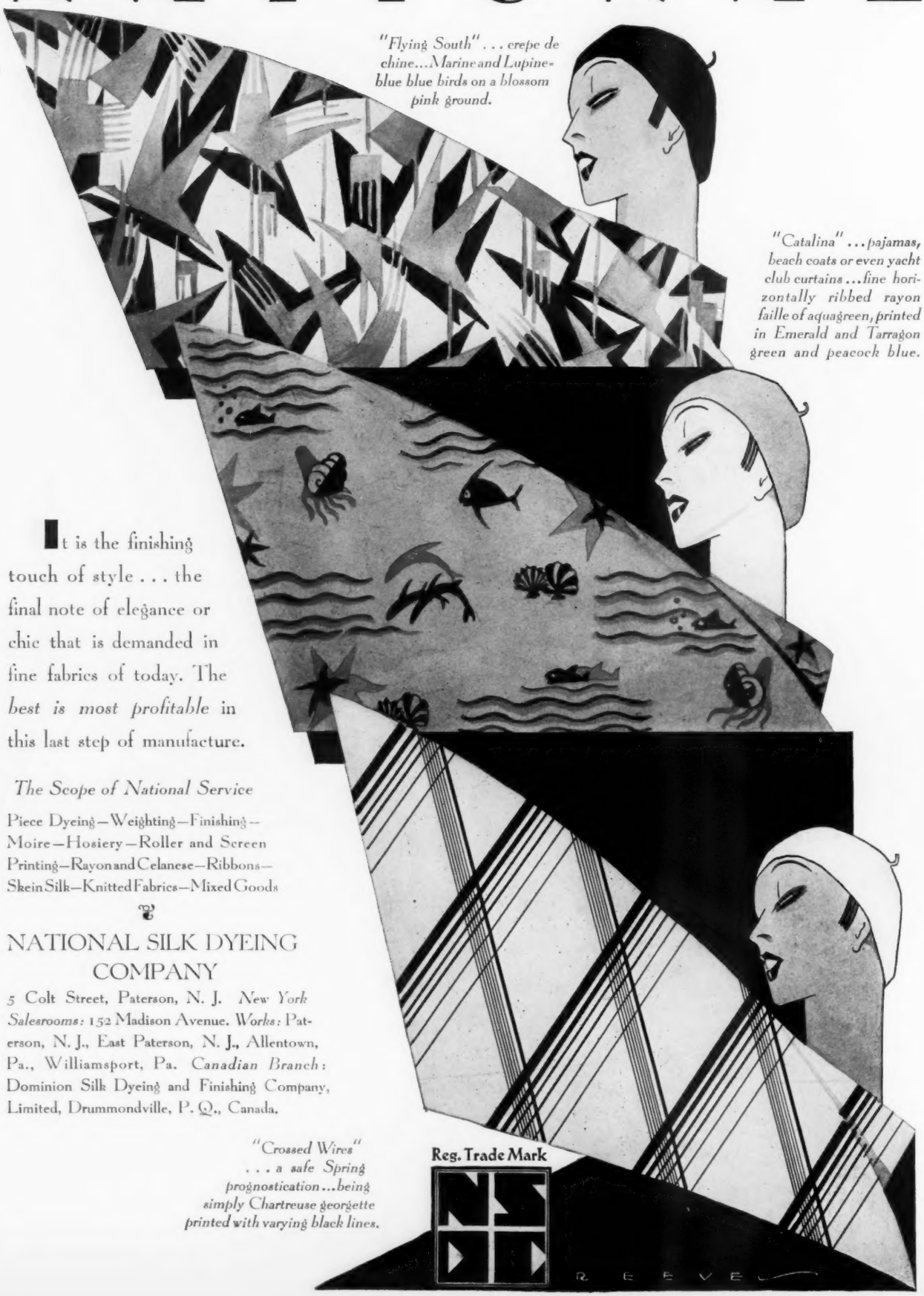

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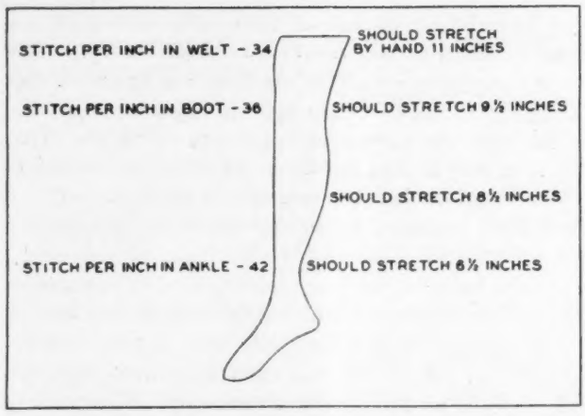

STITCH PER INCH IN WELT - 34
SHOULD STRETCH BY HAND 11 INCHES
STITCH PER INCH IN BOOT - 36
SHOULD STRETCH 9½ INCHES
SHOULD STRETCH 8½ INCHES
STITCH PER INCH IN ANKLE - 42
SHOULD STRETCH 8½ INCHES

Your subscriber pointed out that there is a difference of opinion among fixers as to what should be the proper number of courses per inch. In this connection I would like to say that different men might be counting the courses in different ways. A stocking taken from a machine and laid flat on a desk or on a board will count more courses per inch than when it is pulled on the sizing board.

I will give you here a list of the chain lengths in this stocking, counting the plain links only.

Inside welts, 9; outside, 13; leg, 37; fashion mark lengths, 14; ankle, 19; heel, 16; and toe, 20.

The fashioning device should start working four lengths before the fashion mark links begin.

O. D. (TENN.)

Tuck Needles Bending Latches.

EDITOR COTTON:

In a recent issue of COTTON I noticed where "CONTRIBUTOR No. 4586," who was running 3½-inch 260-needle Scott and Williams machines, was having trouble at times with a tuck needle getting the latch bent. He claimed that the bending took place just back of the spoon, and that, once the machine starts bending them, it will bend them almost every time, bending the same needle nearly every time.

The latch bending difficulty he spoke of is very likely caused by the latch contacting with the sinker as it raises, just after knocking over the old stitch. Reference to Fig. 2 will show how this happens, and also how the sinker may be cut away to prevent this. By cutting his sinkers as indicated by the sketch, I am sure "CONTRIBUTOR No. 4586" will overcome a large per cent of the difficulty he has encountered.

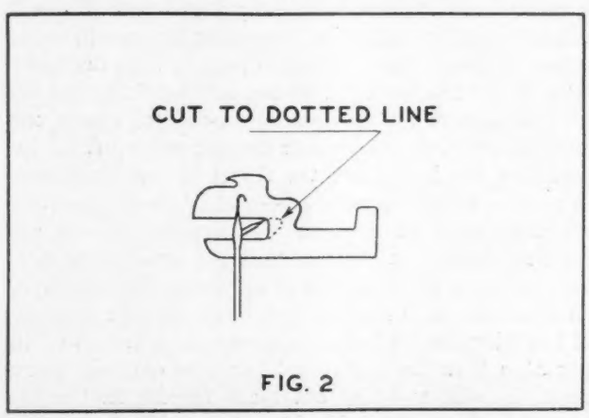


FIG. 2

CONTRIBUTOR No. 4591.

Waste.

EDITOR COTTON:

If you will be kind enough to allow me a little space in some future edition of your "KNITTING KINKS" department, I would like to say a few words about waste. As a definition of the word waste, I would say that it is the difference between profit and loss.

It is said that the United States wastes enough to support Germany, and no doubt this is true.

If any of us should walk into a bank and see money scattered all over the floor and the janitor carelessly sweeping it out with the trash, we would probably stand there in amazement. Yet, we see this very thing every day in an ordinary hosiery mill and seem to think nothing of it.

If the officers of a bank check up after a day's business and find that they are short just five cents, I am told that they stay right on the job until that shortage is accounted for. Their books must balance after each day's business. If each foreman in a hosiery mill should be asked to account for every ounce of material sent into his department before going home at night, very few would ever have a chance to go home at all.

Of course it would be impossible to run a mill on the same basis as any bank but there is room for improvement in any mill that I have ever seen.

If any mill man thinks there is no room for improvement in his department, he should take a day off from his other duties and see what he can find going to waste.

The hosiery business at the present time seems to be in a state of "profitless prosperity" and the only mills that can survive are those that guard against that demon Waste. Most all mills in this section seem to be running full time but profits are very close and just a little unnecessary waste here and there consumes all the profits, so, for a mill to succeed, waste must be guarded against.

The department in which waste seems to be most prevalent is the knitting department. It is this place that must be guarded very closely. If a stocking is to be finished right it must be made right in the knitting department.

The following questions are addressed directly to mill men: If four courses could be cut off of your looper margin on every stocking made in your mill and still have enough left for the looper, what would be your saving? If you can cut your needle breakage down just one per cent per dozen, think what that would mean in one year, and yet I believe this is possible in most any mill. If you could cut your seconds down one percent and your rags one half of one per cent, what do you think these items would amount to? Figure it out.

If any knitter foreman thinks that his seconds, waste and needle breakage are as low as it is possible to run them, the first thing his company needs is a new knitter foreman. It is impossible for any person

to run these items any lower when he is of the opinion that he is running them as low as possible, therefore, it is a good idea for us to hitch our wagon to a star.

I am not going to undertake to tell anyone how to cut down waste until I have succeeded in cutting it down in my own department. I am only writing these lines to call attention to waste problems and to assure any knitter foreman that if he will tackle the job and enlist every knitter and fixer in a campaign against waste he will be able to make a great saving. In order to accomplish this task it may necessitate the removal of some fixers or knitters. However, for any mill man to be a successful department head, he can not allow worthless employees to stay in his department—he must get them out. If he does not, his successor will.

I will cease broadcasting with the following plea to all mill men: Call all of your employees to arms, get your guns and ammunition ready. Sound the battle cry and let's fight this demon Waste until he yells Kamerad and makes an unconditional surrender.

CONTRIBUTOR NO. 4672.

Preventing Looseness in Drum Cams.

Some more ideas on how to prevent this trouble on seamless knitting machines.

EDITOR COTTON:

I notice that a few months ago you published a letter in "KNITTING KINKS" department from a man who wanted to get different readers' ideas on how the drum cams on a Scott & Williams machine could be prevented from coming loose in drums of the machine. According to my experience, there is only one way to keep these cams always tight on the drum, and that is to take ¾-inch or 1-inch screws and use these to put the cams on with. Then put a 6/32nd-inch nut on the end of the screw on the inside of the drum. I have found that by keeping this nut good and tight, the cam will not have so much of a tendency to work loose.

K. N. (TENN.)

EDITOR COTTON:

I notice in the "KNITTING KINKS" section of the January issue of COTTON that one of your contributors is complaining of trouble with the drum cam coming loose from the drums of his knitting machines. He pointed out that these cams are the ones that receive the most wear, such as, on the Scott & Williams machines, set-up cams, transfer cams, shear cams, etc.

As a remedy for this trouble, I would suggest that he use a longer screw, one which will reach far enough through the drum for a nut. Run the nut on the screw on the inside of the drum. Tighten firmly with a wrench. This is not much trouble and it saves a great deal of trouble, a great deal of difficulty and bad smashes.

P. W. (N. C.)

EDITOR COTTON:

I am writing with regard to preventing looseness in drum cams on Scott & Williams machines. This was brought up by one of your contributors in the January issue, in the "KNITTING KINKS" section.

My experience teaches me that one cause of this trouble is, if the 6/32-inch holes in the drum are made at the mill, the proper tap drill was not used. That the hole was drilled too large, causing the thread in the hole not to be deep enough to give the screw a good hold. Again, sometimes the 6/32-inch screws are undersized.

If the holes in the drum were drilled and tapped at the factory of the machine builders, it is very simple.

My suggestion for a remedy is to put on a 6/32-inch nut on the screws that come loose, and draw the nut up tight on the inside of the drum. If necessary put two nuts on each screw, the extra nut to act as a jam nut.

A. W. B. (*PA.*)

Prefers Jar Type of Humidor.

This man likes the jar because of the smaller amount of air around the cone and its tendency to hold moisture in.

EDITOR COTTON:

You recently published an inquiry asking for experiences as to the best type of humidor to use on the full-fashioned knitting machine—the box or the jar type.

According to our experience, the jar type is more satisfactory, if the operator is interested in obtaining the best results. There are, however, several things to be taken into consideration, chiefly the cost of installation. Where no more than two ends of silk are employed to each head on the machine, and where cotton yarns are employed and are left out in the open, the jar type is decidedly a cheaper installation than the box type, while the jar type is much more expensive than the box type where several silk yarns are employed to each head or where it is desired to place all yarns employed in a humidor.

Our experience has been that there is very little to be gained in running cotton yarn in either type of humidor, and we think it a mistaken idea that any particular humidification can be transmitted to the yarn in either type of humidor. When the humidor is thoroughly understood, it must be admitted that its greatest advantage lies in retaining the desired excess humidity which has been introduced into the silk either by back winding or by placing in a conditioning room for several hours prior to putting it in the humidors on the machine. It must be understood that the greater area of air surrounding a cone of excessively conditioned silk, the greater the throwing off of the moisture will be. Since the object of the humidor is to retain the excess moisture—and by excess moisture we mean more than the normal moisture which silk carries—it is then obvious that the smallest area of air space around each cone is the most desirable. And on this basis it is further very clear that the box type of humidor carries far more excess cubic inches of air per cone than the individual jar type carries; therefore, the silk will dry out more rapidly in the box type than in the individual jar type. We would con-

sider the individual jar type a more satisfactory installation for this reason alone.

CONTRIBUTOR NO. 4691.

EDITOR COTTON:

Some months ago you published an inquiry from "CONTRIBUTOR NO. 4601," asking for opinions as to the best type of humidor for full-fashioned hosiery machines.

Our experience is that the glass jars are more satisfactory than other types on full-fashioned knitting machines. Our production includes all silk numbers from top to toe and such numbers of course require additional humidors. While the average cost of the jars per machine may run over the cost of the boxes when the type of stocking is taken into consideration, we still feel that they are worth the difference, inasmuch as the upkeep is not as great; the knitters are able to handle them more satisfactorily; and for this reason the breakage is held down. They are much easier to clean than other types and gives a much neater appearance, according to our experience and observation. We have reached this decision after thorough tests with different types.

CONTRIBUTOR NO. 4690.

Some Questions on Full-Fashioned.

EDITOR COTTON:

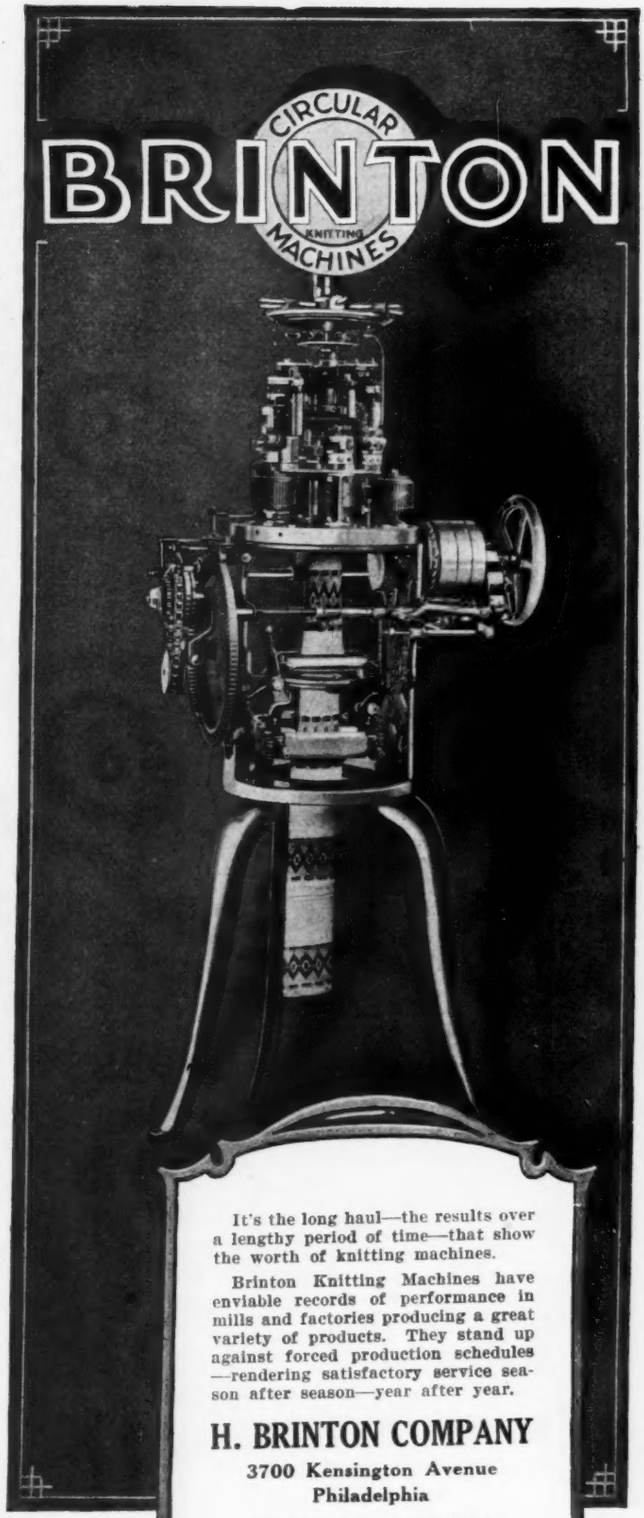
I have some questions which I should like to ask of Mr. Baxter and other contributors to your "KNITTING KINKS" department, pertaining to full-fashioned hosiery manufacture.

First, we buy our silk from a reliable firm on aluminum cones, which do not require back winding. These cones are wound in what is called open wound, that is, loosely wound. The silk is to be soaked for ten minutes and is then ready for knitting.

I should like to have some opinions as to whether a glycerin solution would be harmful in soaking this silk, using only one quart of bleached glycerin to 50 gallons of water. If any of your contributors have any alternate suggestions to make as to methods of soaking this silk I should be pleased to have them outline them in their reply.

Second, if sleaziness is caused from the knitting operation on the machine, why is it that one cannot see the disordered stitches or tight and loose places in the stocking under a magnifying glass? I have at times paid particular attention to one head on the machine, checking the jack springs, jacks, play between the falling bar and sinkers, then when the stocking was dyed and boarded, I could see, under a good light, these places, and in my opinion and according to my experience, a lot of sleaziness results from the de-gumming and dyeing. You have published quite a number of articles on this subject, but I should be pleased to have further discussion on it.

Third, what would be the advice of your readers, in using 14-thread silk in the heel? That is, would it be better to use two ends of 7-thread silk or one end of 14-thread yarn? I know that one end of 14-thread



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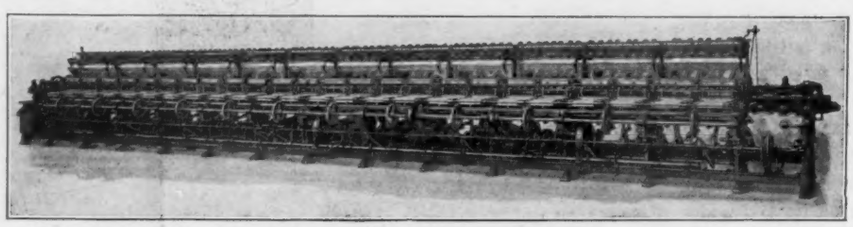


No one appreciates the standardized design of Reading Full-Fashioned Machines more than the mill-owner who has stood by with idle or obsolete machines while his competitors worked at capacity to meet the new demand.

yarn would be harder from the standpoint of the toppers, but I would be glad to see some discussion on this, with regard to the knitting advantage, etc.

CONTRIBUTOR NO. 4696

Straightening Needles on Full-Fashioned Machines.

Readers with experience in full-fashioned are especially invited to write the discussion department giving their ideas on this subject.

EDITOR COTTON:

In a recent issue of COTTON I noticed that "CONTRIBUTOR NO. 4641" would like to have some of the full-fashioned manufacturers offer a little discussion on the subject of straightening the needles, and keeping them straight in the knitting operation. He also asked: "What would be considered a fair average of needle consumption per dozen hosiery on 39-gauge, 42-gauge, 45-gauge and 48-gauge material?"

As for needle straightening and a method of keeping them straight, I will say that in my opinion this is probably the most important single item necessary for the successful operation of a full-fashioned machine.

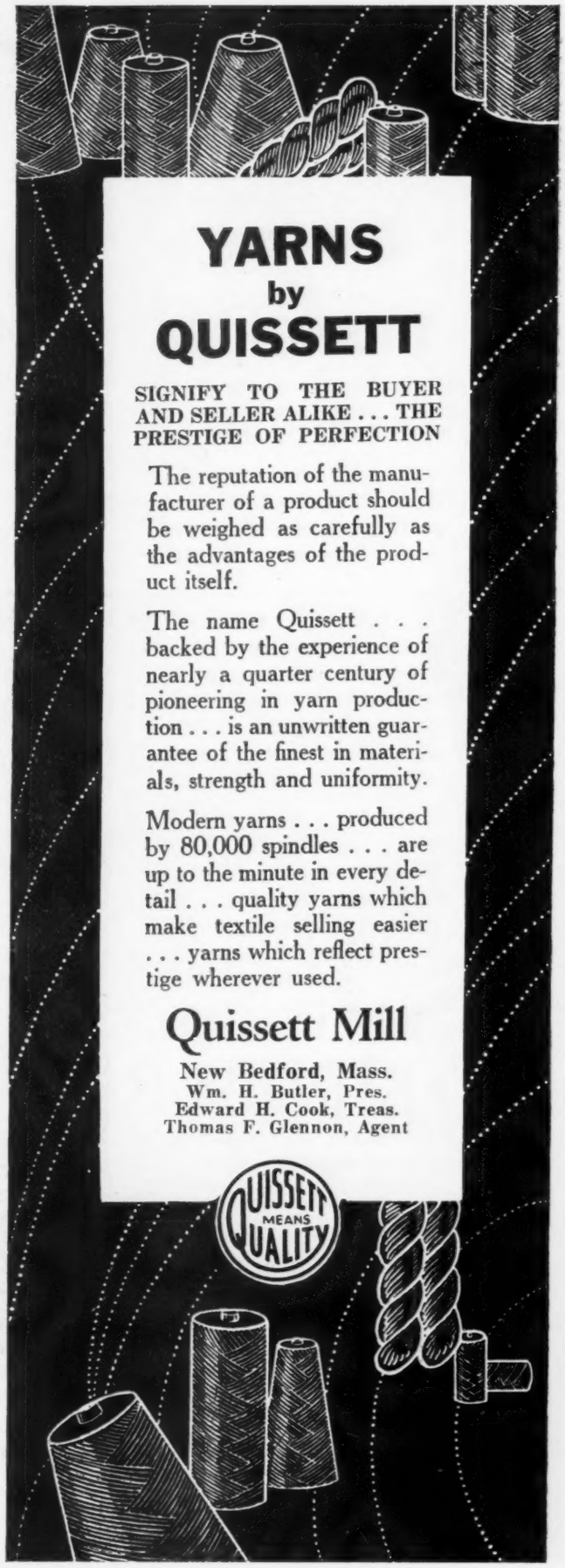
I have noticed that different knitters have different methods for straightening needles and I suppose they all get satisfactory results but I believe that when training new men it is best to have a system to follow.

I find it easier to straighten needles if you will place the needle in the pliers near the crook and then bend the needle with the finger, rather than trying to smooth out the crook with the pliers. The back of the needle should always be straightened first, then the side, and then the beard and head. In straightening the beard, first see that the proper amount of hump is there and then the entire length of the beard should be placed directly over the groove; also, it is very necessary that the beard of the needle be just the proper height from the body of the needle. The thickness of a needle is the height the point of the beard should be from the body of the needle.

I feel that a needle should never be put into the bar until it is just as straight as is humanly possible to get it. We find it necessary to have knitters hand in for inspection at regular intervals all needles that have been pliered.

In order to keep needles straight after being put in the machines, the knitter must train himself so that every time he puts in a new needle, he will not only examine every needle in the particular block which has been loosened, but every needle in the whole head. Even then it will be necessary for knitters to work extra time when the machines are not running, if they are to keep the needles in shape to turn out good work, especially so in mills which are continually breaking in new knitters.

In regard to the average consumption of needles on different gauge machines, using different sizes of silk, I would like to say that I believe that at least 50 per cent of the needles broken are caused by mistakes of knitters. Therefore, assuming that the mill in question has the average knitter of around one to two years' experience, I believe that the needle break-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age on footers would be one needle to every two dozen needles, while on leggers it would be one needle to every dozen needles, thus making a total average of one and one half needles to the dozen.

I believe that the foregoing average would apply to all four gauges mentioned by "CONTRIBUTOR No. 4641" without much variation. It is usually expected that 42-gauge and 39-gauge needles, being rather large needles, should not break so easily, but it is also the custom with mills running these gauge machines to use a slightly lower grade of silk than used on the finer gauge machines, hence the needle breakage for the different gauge machines is about the same.

In regard to the kind of silk for the different gauge machines, I would use 10 or 11 thread of Extra, or Double Extra, for 39-gauge; for 42-gauge, 7 or 8 thread of Special Crack (XX); for 45-gauge, 4 or 5 thread of Grand (XX); and for 48-gauge, 3 or 4 thread of Triple Extra.

The foregoing is taken from my actual experience here at the mill. Therefore, I am anxious to see how it compares with other mills.

CONTRIBUTOR No. 4657.

Solves Problem and Thanks Contributors.

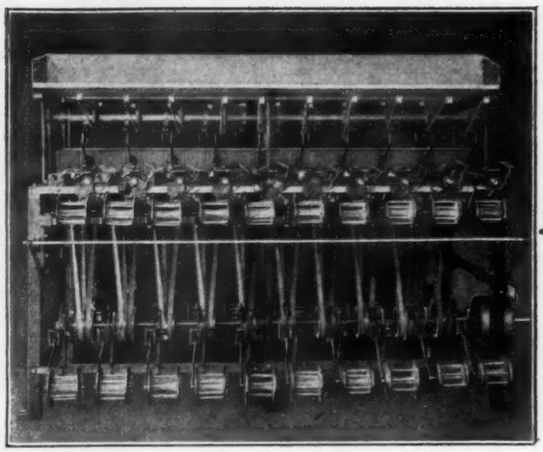
Several of our contributors assisted this man, and he tells how he overcame his difficulty with bent latches.

EDITOR COTTON:

Sometime ago I sent you a question for the "Knitting Kinks" department with reference to a trouble we were having with a tuck needle getting the latch bent on 3½-inch 260-needle Scott & Williams machine. You published this on page 1082 of the July issue. In the letter I pointed out that the needle got bent short just back of the spoon; and that when a machine started doing this it would bend the same needle every time, but not both of them, sometimes it would be the front one and sometimes the back one. The needle would almost always get bent while making a tuck or between the tuck and the beginning of the high splice.

You have published several answers to this question, which we appreciated, and which we trust were of interest also to other subscribers. One of these was from "B. M. (N. C.)" and was published on page 1466 of the October issue of COTTON. In this, our friend "B. M." pointed out that in his opinion the difficulty was that the latch was long enough to come in contact with the sinker and that the sinker bent the latch. He recommended filing the slot in the sinker with a rat-tail file, to a certain extent. He explained that the reason the latch breaks usually in the narrowing mark or below, is that the fabric is knitting tighter in the ankle and the stitch is binding the needle closer, making it harder for the stitch cam to move the needle in the cylinder slot, which causes the needle to twist slightly as the latch swings from the center toward the sinker and increases the liability of the latch coming in contact with the sinker.

Several other contributors, among them being "T. M. (TENN.)," "CONTRIBUTOR No. 4591," and others, recommended this same idea of cutting out the sinker. One of these men pointed out that the machine man-



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ufacturers regularly supply such cut-out sinkers for use, one on each side of the long latch tuck needle. I have secured these cut-out sinkers and find the trouble eliminated, and I wish to thank these contributors through the "KNITTING KINKS" department for their help. Several of the men suggested that we use a number 97 needle instead of a No. 94 needle. They pointed out that the No. 94 needle has a little bit longer latch than the No. 97, and that this might have a bearing on the subject. However, we were unable to do this, as the No. 97 needle would not make the last four or five fashion marks.

CONTRIBUTOR NO. 4586.

Keeping Cylinder Down on Model K.

These practical men give their methods of getting even lengths in knitting ladies' seamless hosiery. Will you give yours?

EDITOR COTTON:

"How do you keep the cylinders down on Model K Scott & Williams machines?" was asked in a recent issue of COTTON by "CONTRIBUTOR NO. 4620."

There are as many needles moved upward as there are moved downward in each revolution of the cylinder, and the centrifugal force gives the cylinder on Model K machines a sloping position between the cylinder raising cams and the cylinder tube arm. The main difficulty is that the screw in the cylinder tube arm does not rest directly on the top, as clearance is allowed for the movement of the sinker cap when the machine is on the reciprocating motion. This floating is one cause for variation in length.

We have been able to solve our troubles along this line by the application of a positive stitch control device, which gives a pressure on top of the cylinder during the whole operation of making a stocking, except when the machine is on the heel and toe. The pressure is released at that time to allow the sinker cap to swing freely.

We have run many tests, and found the length to be from one-half inch to two inches shorter after the positive stitch control was applied, in comparison with the length before using the device. Considerable study has been given to this attachment, and it is so constructed that it does not interfere with the working or adjusting of other parts. It is very easily applied and removed.

CONTRIBUTOR NO. 4644.

EDITOR COTTON:

On page 87 of the November issue, in "KNITTING KINKS," there is a question from one of your contributors who states that he has difficulty on the Model K Scott & Williams machine, which is equipped with the stitch graduating attachment, in keeping the cylinders down; that is, the cylinders do not drop to the proper level at each graduating kick, causing the length to vary considerably. He told of a number of things he has done in an effort to overcome this trouble, such as putting a screen door spring on the cylinder tube to pull the cylinder down, etc.

It is my opinion that at least some of his trouble is caused by too much friction on the needle, and any one of the following items might be causing some of his trouble: too much bend in the needle at the friction point; cylinder clogged with lint and grease; needle bands too tight or not of the correct size; needle bands too large, which will fill the slot too full and make the needles hard to raise at the highest point. Thus, when the needles are being raised over the stitch cams, if they do not push through the needle slots easily, they will lift the cylinder and will not allow it to fall properly on the light moves of the graduating cam. A cylinder with the needles tight will work perfectly on the change from the heel to the foot, and will not fall properly on the graduating cam.

On page 85 of the same number you published a letter from "H. B. (TENN.)" who said that using the old drum cam, he is having a hard time getting a tight ankle without showing loose and tight between the leg and the foot tension. I believe the foregoing suggestions will also be of help to this man.

L. B. (GA.)

An Old-Timer Says—

(*Continued from page* 529.)

I knew would be worth his salary to his firm if both of his arms and both of his legs were cut off. It's your brains that your firm is paying for. The ideas that emanated from that brain of yours were the cause of your first promotion. And how is the old brain working these days? Is it turning out any new ideas? If not, then you are not progressing? How long has it been since you had a really *new idea* that went into effect and is still being followed?

Ideas are what count in this world today, and what will count for all future time.

Every famous product, every personal success, is the result of an idea.

From the greatest industry to the smallest country store, everything starts from and lives by ideas.

The highest paid man in any organization is the man with ideas. Everybody turns to him, looks up to him, relies on him. He is the only man without whom the business cannot get along.

Say, can't you rake up a new idea today?

You have a dollar, and I have a dollar.
We Swap.
Now you have my dollar and I have yours,
We are no better off.
BUT,
If you have an idea, and I have an idea,
and we swap,
Then you have *two* ideas, and I have *two* ideas,
and we are both better off.

How about stirring around among your men to see if you can't swap some ideas? Just keep in mind that there isn't a job on earth that couldn't stand a few new ideas.

Some one is going to think of them—
What are you being paid for, anyhow?

Some more Random Thoughts next month.—Ed.

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Brilliant Softener 3B (for Mercerizers)
Olive Oil Softeners
Cream Softeners
Olive Savon Oil (Softener and Black Intensifier)

SOAPS
For Scouring and Fulling
Pure Green Olive Soap
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Palm Soap
Tallow Soaps
Red Oil Soap
Oleine Scouring Soap
Fulling Soaps (Special Formulae)
Chips, Solid Packed, Bars, Powder

SULPHONATED (SOLUBLE) OILS
All Strengths—All Types
Castor Oil (Soluble Castor)
Olive Oil (Soluble Olive)
Neatsfoot Oil (Soluble Neatsfoot)
Tallow (Soluble Tallow)
Corn Oil (Soluble Corn)
Cocoanut Oil (Soluble Cocoanut)
Red Oil
Cod Oil
Soluble Pine Oil

KNITTING, SILK, and RAYON OILS
Crystal Rayon Oils (for every rayon purpose)
Ruxite (Soluble Rayon Oil)
Silk Oil BW (for Back-winding)
Stainless Knitting Machine Oil
Laurel SXG Oil
Neatsfoot Oil
Soluble Neatsfoot Oil

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DYEING AND PENETRATING OILS
Hydrosol
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Monolo Oil (for silk dyers)
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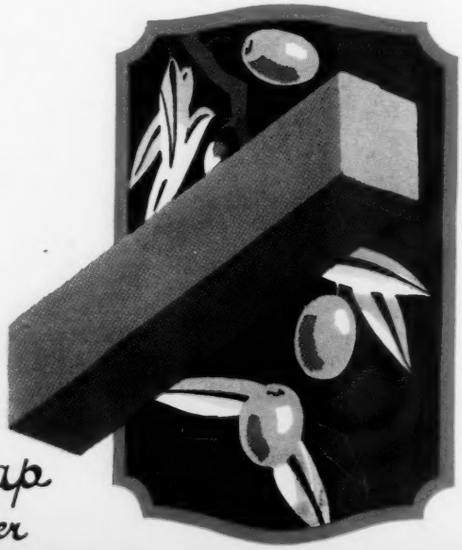
Nebosol (Fulling and Scouring Compound) Metrosol (Fulling and Scouring Oil) Hydrosol.

Also Products for Special Processes, Pure Commercial Olive Oil, Neatsfoot Oil, Lard Oil, etc., etc.

See also Page 371, Consolidated Textile Catalogs



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L

The KNIT GOODS MARKETS

IT HAS BEEN the experience of primary market hosiery interests that each year the markets go through two periods of slack conditions—one at the beginning of the year, the other during mid-summer. It appeared to some observers last month that this year the post-holiday dullness might continue with little variation through the summer months, unless, it was pointed out, sensational price reductions be made by a few pivotal mills in the event buyers maintain a hands-off attitude when ordinarily they would be making their spring commitments and preparing especially for brisk selling during the Easter holiday shopping period.

While prices for hosiery of 45-gauge and finer had been slipping for some time, the very large mills stood pat on their lists, so far as indicated by absence of formal announcement of any change. It appeared as though the executives of the more powerful plants were giving price cutters all the rope necessary for strangulation, that it was the presumption the financially weak would wear themselves out trying to exist without profits while waiting for a market upturn, or would temporarily shut down on production. Quite a number of northern concerns, notably in and near Philadelphia, adopted the latter policy, after continuing the former until the pinch of continued sacrifices began to hurt. This was viewed as progress in a movement certain to produce results for the strong and patient, as it was believed that in the event of a decimation of plants there would be found ready outlets for the surplus stocks in mills which continued operating in the face of steady accumulations among rivals. On the contrary, according to another view, if buyers still persisted in dictating prices, the big mills with stocks in the gray could quickly start a flood of buying by making reductions that would probably jolt the the entire industry.

Buyers have been withholding commitments in expectation of something sensational in the way of revisions. It did not come to pass on the schedule they had fixed for it, and some began to feel impatient. This became manifest a few weeks ago in closer inquiry for price hosiery—that is, fine-gauge goods at the price of coarse. There still were silk full-fashioned stockings aplenty for sale purposes, but stores had to look for new sources of supply, for mills which had unloaded were closing down on production and were through with producing for stock while there remained doubt whether the looked-for reductions by powerful factors were to be made. By the beginning of March it was thought, stocks as a whole were in the best condition since last fall. But there remained the question whether it would be the manufacturers or the buyers who would be forced to break the deadlock.

The condition of mill stocks has been steadily improving by reason of the output of probably a dozen well known mills being reduced certainly 75 per cent by strikes. The H. C. Aberle Co. mill, in Philadelphia, normally employing 1400 persons, according to a late February report had but 450, and this exceeded the number in any previous week since early in January. Less than one-third of the force of the Rodgers Hosiery Mill, also in Philadelphia, has been on duty since strikers late in January began picketing the mill. Several others, smaller establishments in Philadelphia, are crippled as a result of strikes, while some have fought their battle and are operating undisturbed.

It was estimated at the headquarters of the hosiery union, that 2,000 of its members in Philadelphia were idle in February, due to strikes, and that possibly 1,000 more were out of employment at the mill of the Kraemer Hosiery Co., of Nazareth, in Pennsylvania, and the Paterson Mutual mill in Paterson, N. J. The strikes have had the effect of halting accumulations of stocks of silk full-fashioned hosiery, and improvement to this end has been helped along by voluntary plant stoppage in many instances. But small, not well financed mills are having a hard session.

Says Slump in Hosiery Started in November

LOOKING BACKWARD a few months, it appears that supply and demand of women's silk hosiery were out of balance last fall, as in November, when mills ordinarily would be under pressure for deliveries for the holiday trade, some were quoting sharply revised prices to department stores. It is recalled by buyers that lines for which they had been paying $14.75 a dozen were offered for $13 to $13.50, and one such line was offered a few weeks ago for nearer $10 than $11. That full-fashioned manufacturers then sensed a surplus is indicated in a materially lighter production in November than that of October, and a falling off in December from November. But production in December was considerably heavier than that for the corresponding month of 1928. This was offset by a very radical drop in women's seamless pure thread silk and silk mixture goods. The decline, all classes, amounted to around three times as many dozens as the increase in silk full-fashioned. Comparing with a year before, women's seamless silk production fell off by nearly a third. The heaviest drop in December, comparing with both the previous month and with December of the previous year, was in women's silk in combination with rayon and straight rayon.

The low price of silks may be suspected as the explanation for declines in the quantities of rayon and rayon mix hosiery and doubtless accounts for receding prices for Bemberg full-fashioned. It is noted that there was a striking increase in reported output of cotton full-fashioned hosiery in December 1929, by com-

parison both with November of that year and December of 1928. This increase, obviously, refers to hosiery of mercerized cotton and is viewed as possibly a reflex of the exploitation of mercerized under the copyright name Durene. If this inference be 50 per cent correct, the reaction to advertising of Durene has been quick and startling and may be a forerunner of a moving forward of processed cotton yarns for hosiery. The probability is that most of the full-fashioned hosiery of cotton was knitted of lisle, which in fine-gauge stockings recently has been gaining in favor, according to some leading retail stores.

According to hosiery buyers operating among scattered mills and specializing in over-runs and sub-standard silk hose, it has become more difficult to sell irregulars on the normal markdown from prices for first quality. There are freer offerings of "seconds", which appear to have been made less attractive since several manufacturers selling under their widely advertised brands permitted department stores to feature, for a dollar to $1.15 a pair, what were placarded as irregulars but were held by persons in the trade, to be, largely, of firsts.

Irregulars from a manufacturer in Kentucky were offered in the New York markets a few weeks ago for $10 a dozen for three-thread silk 45 gauge, picot top. The imperfections were irregularities in the silk. The price was within a dollar a dozen of what some northern manufacturers were getting for first quality of same gauge in four-thread. Almost simultaneously, three-thread silk 48-gauge from a Pennsylvania mill was offered at $9 a dozen. In this case also it was streaked silk that put the stocking into the irregular class.

While this disparity as to irregularities cannot be accepted as a criterion of relative prices for regulars, it is a common opinion in the trade that manufacturers in the South have not been shading market quotations as sharply as have numbers of manufacturers in northern cities. It is stated the explanation for this is, southern mills have accumulated less stock than have their rivals in the North, and that as a group the various mills are more nearly on a cost parity, whereas in Pennsylvania, for illustration, there is a vast difference between cost of production in Philadelphia and in the suburbs. A cursory survey indicates that fewer mills in the towns and villages in the Philadelphia area have been idle than in the city proper. Having a lower operating cost they have less difficulty in disposing of a normal output.

That there is a definite trend to sheer service weight silk full-fashioned is indicated in unofficial, but authoritative reports of manufacturers taken promiscuously and believed by department managers in leading women's shops. Yet women who adhere to the sheer give preference to the lighter weight fabric, as disclosed during an observation sale in Philadelphia by a representative establishment, the result of which is thus narrated by the merchandise manager: "We had been displaying four-thread silk 45-gauge, priced $1.95," he states. "Sales were unsatisfactory, and we attributed their narrow volume to the theory seven-thread was receiving preference. To gratify a curiosity we put some three-thread silk 48-gauge in the window side by side with the four-thread 45, without changing the price ticket. We soon found that nearly all of our hosiery customers were taking the 48-gauge, which caused us to believe that those who wear the sheer want the very sheer, regardless of the greater cost and less service, which explains why there is a drift to heavier fabric and accounts for increasing sales of seven thread. We understand that stores catering to the taste for the sheer and yet must have a low price, are buying four-thread 42-gauge, at about $9.75 a dozen, for a picot top number."

A line of silk stockings featured by an exclusive shop as a dollar a pair proposition is of seven-thread 42-gauge. The store has been selling the identical number for more than 18 months and sales are reported increasing, from which it is inferred the establishment's good class of trade feels it is getting value in the dollar stocking, which might not be the case if it were a chiffon. It was noted by a trade news writer that in a department store maintaining an extensive repair department a very large per cent of the stockings presented there for darns and mending of runners were chiffons, and it was stated that more and more hosiery comes to the store each month for mending. Whether this was due to women practicing more rigid economy or to a natural growth of the service, the department manager was unable to say.

The hosiery repair shops say they get practically no cheap stockings to be mended, that women who wear them say their hosiery bill is no higher than if they bought better hose and had it mended; that it gives them less trouble to discard the cheap when it rips or develops a runner than to visit the shops where mending is done. The difference in favor of the high priced that may have been repaired is in appearance and women's satisfaction in the knowledge her stockings are just right—that is, if the back seam be vertical, instead of forming a spiral or diagonal. As put by one of the very clever buyers for fashionable shops, "full fashioned stockings may either make or break a woman. If she is careful with them, she's 'made,' from the standpoint of correct leg attire, but if she does not have the seam just right, she appears slovenly, which 'breaks' her."

Conditions in Men's Half Hose Adjusting Themselves

WHILE WOMEN'S silk full-fashioned hosiery ordinarily is regarded the barometer of the full hosiery primary markets, it is doubtful if this division does not reflect a more satisfactory condition than that which exists in men's fancy half-hose. With the market glutted, there is indication of a greater relative increase in potential production than in women's full fashioned. In this latter group new machinery is being installed, but usually it is of finer than 42-gauge, numbers of small mills adding a set or two of 45- and and 48-gauge each, the trend as indicated by new installation, being toward higher price lines. In the half hose division the price direction appears to be downward.

Fancies to retail for 35 cents for some time have been outselling 50-cent socks, and latterly there seems

FORMATION OF FULL-FASHIONED MANUFACTURERS.

FOLLOWING the first general council meeting of full-fashioned hosiery manufacturers interested in the formation of a new national organization of this division of knitting, much interest has developed in the question whether it will be possible to combine manufacturers of the North and South in one association. C. Marlin Bell, executive manager of the Philadelphia Textile Manufacturers Association, who by invitation is heading the movement for a national organization to deal with matters ethical as relates to buyers and maintaining a better understanding among mill men for averting overproduction says the organization is a certainty; that the project has the approval of 75 per cent of the manufacturers. He contemplates five distinctive groups, each to be self governing, yet cooperating with all of the others. The southern field would constitute one group. The general council meeting in New York late in February to further discuss plans was well attended by representatives from the Philadelphia and Reading areas. The committees were: Philadelphia, S. E. Summerfield, Gotham Silk Hosiery Co.; W. Park Moore, Hancock Knitting Co.; William Meyer, Apex Hosiery Co.; S. D. Sanson, Ajax Hosiery Mills, Phoenixville; Joseph Haines, Jr., Haines Hosiery Mills, Inc. Reading; Ferdinand Thun, Berkshire Knitting Mills; E. Richard Meinig, the E. Richard Meinig Co.; H. W. Horst, the Nolde & Horst Co.; W. C. Bitting, Rosedale Knitting Co.; Hugo Schumann, Reading Maid Hosiery Mills, Inc., and C. H. Biehl, the Northmont Hosiery Co. There were representatives present also from the Southern and Western field and the New York, New Jersey and New England sections, among them members of both the National Association of Hosiery and Underwear Manufacturers and the Full-Fashioned Hosiery manufacturers of America.

an abiding confidence that future mass distribution will be of socks for the 25-cent bracket, and some manufacturers intending to increase their output expect to specialize in 220-needle goods. All of the added installation, it appears, is to be in the Southern field. There is seen evidence of some new interest in low price half-hose among a few manufacturers in Reading and roundabout, but no new mills have been projected. The better item in men's stockings for Pennsylvania mills, it appears, is golf hose, much of which, however, is produced by manufacturers of sweaters, who knit like patterns in both sweaters and golf hose. In juvenile numbers, there seems no doubt, boys' novelty hose is outstanding for sustained production levels.

The markets for children's hosiery present nothing that is striking, nor is there heard so much complaint as in some divisions. There has been an increase in production of infants' socks, but this can be ascribed to the placing of orders which were withheld until buyers could no longer safely trust to luck for their spring deliveries. Juvenile lines other than infants' are regarded in a fairly satisfactory position as to advance business and conservative supplies.

Accepting the word of hosiery buyers for jobbers and department stores and considering their comment alongside of that of manufacturers, no distributor is buying a case more of men's, women's or children's hose than he feels is essential for maintaining assortments. The situation is well illustrated in the blank refusal of the merchandise head of a very large, nationally known retail store, to O. K. an order for a new line of hosiery which an experienced buyer had written. The merchandise man said he would not approve an order for anything more for February—it was on the 11th he so declared. The mill representative said he would prefer an order for March delivery. "No," we'll not buy anything for March till we know what March will be like." And that terminated the interview.

Progress of the Archer Hosiery Mills, Columbus, Ga., in placing its line of very fine-gauge circular knit silk hosiery for women in the better stores in New York and Philadelphia is accepted as indicating that this new and improved type of circular knit is destined to receive a very cordial reception. Both the seamed and plain back numbers are being bought for the main hosiery aisles in some leading stores. A more inopportune time for introducing the stocking that may mark the beginning of a return of the seamless knit could not well have been chosen. Yet it is nosing its way into shops which hitherto spurned anything in the way of seamless knit stocking for women. The Archer lines—one number to sell for $1.65 a pair and one for an even dollar, appears to be the pioneer in the field of the new type circular knit with full-fashioned talking points.

Open Winter and Cotton Fluctuations Retard Activity in Cotton Underwear

HEAVY WEIGHT COTTON UNDERWEAR manufacturers gave up trying to adjust their prices to declines in cotton. That plan to interest buyers, failed as it must have been apparent it would, for so long as cotton continued to recede, underwear distributors necessarily looked for and, usually, obtained comparably more favorable terms. But as it is the policy of buyers to buy as little as possible in a declining market, manufacturers could only be patient while waiting for the turn that all agreed was certain to come. Even before the descent of cotton was halted, mill men ceased their revisions of underwear prices.

When first prices for men's cotton ribs were named for the fortunately, late opening, buyers conceded they were fair, and it looked as if there would be little delay in contracting for enough early business to put mills in production at once. There was manifest a friendliness for staple numbers and some little business was placed. There probably would have been no change in buyer attitude toward merchandise but for the unexpected slide in the ticker value of the raw fiber. No less underwear will be contracted for than if all had gone as smoothly as the start of the season, unless because of an open winter. Climatic conditions and a softening raw material market constituted a combination that left manufacturers in the position of pulling against tide and wind.

This was one occasion when price cutting neither stimulated nor retarded buying, and once that came to be generally realized in mill quarters, the dubious scheme for coaxing orders from cover was, virtually abandoned. The reductions, so far as they could be effected, have left underwear at a lower price level where, it might be assumed, large distributors would want to take steps for protecting the orders they will

FAST COLOR IDENTITY IS NOW THE MASTER SALESMAN

How 31 Manufacturers Meet the NEW Competition in *Color*

These manufacturers offer Franklin Process Identified Fast Colors:

ARBEKA WEBBING CO., Pawtucket, R. I.
Arbeka "Cullerfast" awning braid.

ART EMBROIDERY WORKS, 1508 Washington Ave., St. Louis.
Curtain fabrics.

BEAR MILL MFG. CO., 120 Franklin St., New York City.
Fast color yarn dyed curtain fabrics.

CAMBRIDGE HANDKERCHIEF WORKS, 12 East 22nd St., New York City.
Handkerchiefs.

COHN-HALL-MARX CO., 93 Franklin St., New York City.
Curtain fabrics.

DRAPART CO., INC., 33 West 26th St., New York City.
Fast color yarn dyed curtains.

ELLIOTT-GRANITE LINEN CORP'N, Wortendyke, N. J.
Cotton and linen towels and napkins.

FAIRCLOUGH & GOLD, INC., 274 Summer St., Boston, Mass.
"Bedford Scrim" marquisettes, voiles, lace trimmed yard goods and curtains.

LOUIS F. HALL & CO., 250 Fourth Ave., New York City.
Curtain fabrics and shirtings.

I. C. HERMAN & CO., INC., 100 Worth St., New York City.
"Herman" handkerchiefs.

HOLT MFG. CO., 106 Straight St., Paterson, N. J.
"Sunrise" face cloths and turkish towels.

INGRAM MFG. CO., Nashville, Tenn.
Ingram "Colorug."

ISELIN-JEFFERSON CO., 328 Broadway, New York City.
"Superba" turkish towels.

MRS. H. L. JARVIS, 3450 Thornton Ave., Dalton, Ga
Hand tufted candlewick bedspreads and bath mats. Hand fringed draperies.

JOHNSON & FAULKNER, 35 East 17th St., New York City.
31-inch Oxford damask for slip coverings.

KENNER & RAUSCHENBERG, 320 Fifth Ave., New York City.
Candlewick bedspreads.

H. MENDES & CO., 56 Leonard St., New York City.
"First Preferred" madras shirtings.

MODERN CURTAIN CO., 99 Portland St., Boston, Mass.
Clip spot curtains.

MORSE, DRISCOLL, HUNT & CO., 330 Fifth Ave., New York City.
Mayflower curtains.

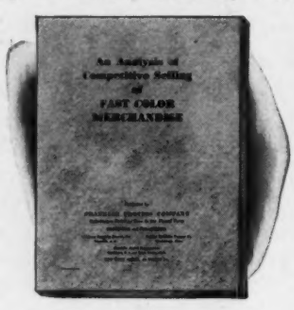
NIAGARA TEXTILE CO., Lockport, N. Y.
"Niagara" towels.

Franklin Process Fast Color Label identifies the color values of these well-known lines.

SINCE the first announcement of the Franklin Fast Color Identification Plan, 31 manufacturers and converters have adopted it; more than 3500 buyers have written for the Directory listing and identifying these lines.

The trend of demand today is not only toward fast colors, but toward *Identified* Fast Colors. Buyers everywhere want fast colors—and want also a means to distinguish genuine fast colors from "commercial" and similar doubtful colors. Hence:

For mills, converters, and cutters, we have made an analysis of Competitive Selling of Fast Color Merchandise. This Analysis shows the old way of selling and the new way. It explains the factors that have caused this demand for fast color—and for Fast Color Identification by the dyer.



This Analysis is published in a New Report. It shows that the keynote in color merchandising is Identification of the samples you sell from. It explains the plan that these thirty-one manufacturers now use—a plan that costs nothing to install or operate.

To the executive responsible for establishing fast color values, this Report is invaluable. We offer it free of charge. With it we will send the booklet, "What Franklin Process Can Do For You" explaining the complete merchandise service you can use to introduce your fast color lines to more than 3500 retail syndicate, wholesale and cutter buyers. Address, using the coupon below for prompt delivery.

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Identified Fast Colors

PLANTS

FRANKLIN PROCESS CO., PROVIDENCE and PHILADELPHIA

SOUTHERN FRANKLIN PROCESS CO. Greenville, S. C.

CENTRAL FRANKLIN PROCESS CO. Chattanooga, Tenn.

FRANKLIN RAYON CORP., Providence, R. I.—South Boston, Mass.

NEW YORK OFFICE—40 WORTH STREET

THE COLORED YARNS IN THIS FABRIC ARE FRANKLIN PROCESS DYED FASTNESS TO WASHING AND LIGHT GUARANTEED UNEXCELLED

FRANKLIN PROCESS COMPANY, 564 Eddy Street, *Providence, R. I.*

Please send me complimentary a copy of "An Analysis of Competitive Selling of Fast Color Merchandise," and a copy of "What Franklin Process Can Do For You," showing how to establish fast color values.

*Name*_____ *Title*_____

*Company*_____

*Address*_____ Ad. 344

receive when the retailer body recovers from the lethargy that many say is the psychology of jobber attitude.

One reason for believing the wholesale distributors will not long defer making commitments for a fair per cent of their requirements is the knowledge that leading chain store organizations and some of the less pretentious are leaving substantial firm orders with a coterie of manufacturers whose lines are widely known in the trade for strict adherence to construction detail. They are getting standard underwear at prices so reduced from last season that it is confidently expected there will be freer consumer buying. Single unit retailers doubtless will see a drifting of some of their business to chain stores. Men's shops, featuring the higher price goods, doubtless will be immune from the operations of the practice of trying to do business with stocks that are in mill warehouses.

The markets for heavy weight underwear have had two full months of the quiet that ordinarily follows the opening, and which this year was of longer than usual duration. March then was picked as the beginning of active trading in heavies, and a picking up in the business in summer weights, which also have been lagging for, in large part, the same reason that heavies have dragged. In light weights there has been little disturbance from price cutting, so that one obstacle to seasonal activity was absent. But merchants have been tardy with repeat orders for even bal briggan and ribbed goods. These for the coming season have held amazingly well in competition with rayons, which, according to some of the more important distributors, are gaining perceptibly in popularity for summer wear.

It is noted in this connection that the relatively mild weather has had a freakish influence on the markets for men's underwear. Except as to certain localities, it is learned from wholesalers to the retail trade, that whether a man wore heavies or light weight union suits, for example, the average temperature left him content with what he was wearing. He felt no urge to substitute heavies for light weights nor was he interesting himself in bals or nainsooks if he already had donned 12-pound union suits or their equivalent in two-piece suits. And retailers appear to have maintained about the same attitude as the consumer chosen for the illustration.

Rayon "lingerie" for men is forging ahead because, chiefly, it has the producers of rayon fiber back of it. One of the better known northern manufacturers is supplying it in at least five distinct types of fabric. In one of these the construction is of alternate threads of high luster and low luster yarn, the effect on the finished garment suggesting rayon-and-cotton or silk-and-rayon. This is said to represent a classy garment for really classy trade. The absorptive quality is hardly to be thought of when considering cotton, buy but such things as comfort are forgotten when vanity dictates, and as man seems to verging toward womanhood in matter of the style and the dainty, man's rayon underwear, or speaking within bounds, lingerie, may be regarded as cutting further this year into the use of cotton garments.

LASTING RESILIENCY

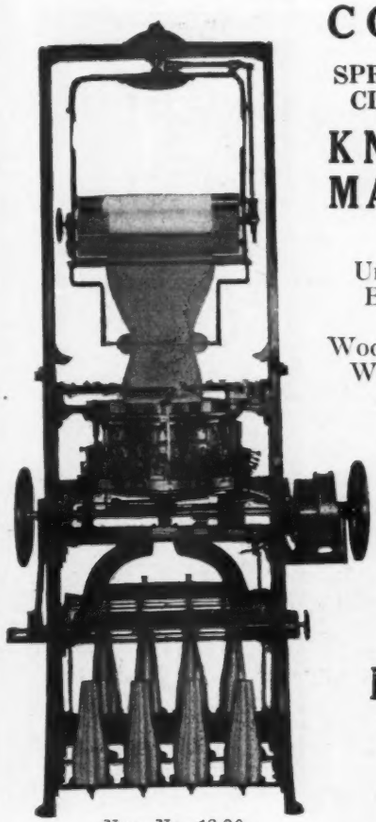
is knitted into Fabrics made on

COOPER

SPRING NEEDLE CIRCULAR RIB

KNITTING MACHINES

FOR Underwear and Bathing Suits of Wool — Cotton — Worsted — Silk and Rayon



New No. 18-20 Spring Needle Rib Body Machine with Stop Motion

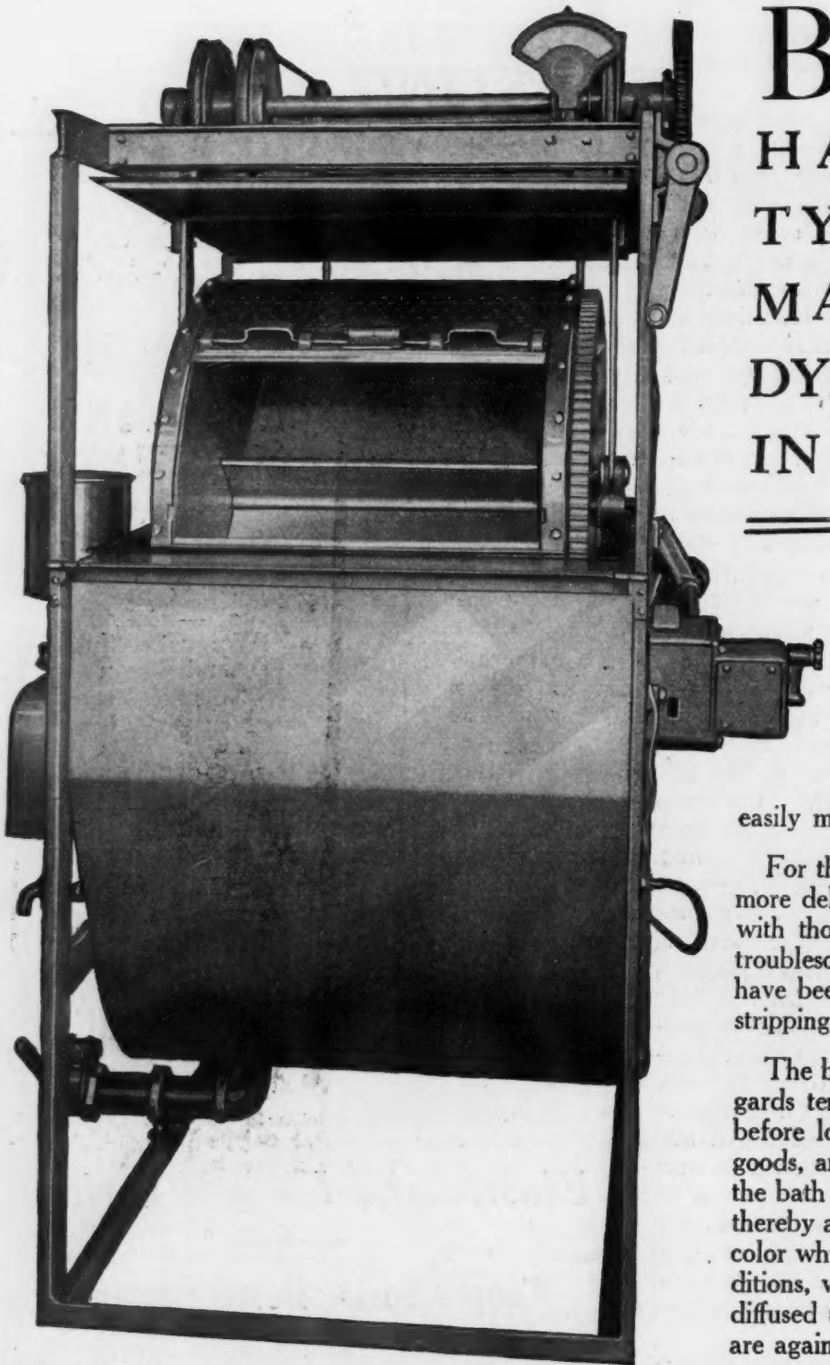
THE MOST BEAUTIFUL FABRIC KNIT

Elastic and Long Wearing

Cooper Spring Beard Knitting Needles—made since 1842

Cooper High Speed LATCH NEEDLES with NON-TURNABLE RIVETS

CHARLES COOPER CO.
INCORPORATED
BENNINGTON, VERMONT, U. S. A.



Front view with cylinder raised and open.

BUTTERWORTH HAND HOIST TYPE ROTARY MACHINE FOR DYEING HOSIERY IN SMALL LOTS

These hand lift type machines incorporate the advantageous features of our larger power-lift machines, and enable the dyer to easily meet the most exacting requirements.

For the smaller dyeings, especially of the more delicate goods, this machine helps you with those colors which you otherwise find troublesome and for re-dyeing goods which have been subject to a previous dyeing and stripping.

The bath may be exactly prepared as regards temperature and distribution of color before lowering the cylinder containing the goods, and the cylinder may be raised from the bath for unloading. Also for sampling, thereby avoiding the absorption of additional color while the sample is being tested. Additions, when necessary, may be thoroughly diffused through the bath before the goods are again immersed.

Complete details and further illustrations of this new type hand lift hosiery dyeing machine will be sent promptly upon request; also on the power lift type of machine and regular rotary type machine.

H. W. BUTTERWORTH & SONS COMPANY, *Established 1820*

PHILADELPHIA, PA.

PLANTS at PHILADELPHIA and BETHAYRES, PA.

New England Office: TURKS HEAD BUILDING, Providence, R. I.

Southern Office: JOHNSTON BUILDING, Charlotte, N. C.

In Canada: W. J. WESTAWAY CO., Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF FINISHING MACHINERY FOR THE TEXTILE INDUSTRY

According to the opinions of some observant factors, greater economy in the selection of underwear is likely to be witnessed this year, among men as well as women. As is pointed out by even supporters of rayon as still the coming fabric, a cotton vest is costing women less than one half of a rayon garment of the same name on a quality parity, and the former possesses the advantage of greater durability and more comfort, it is admitted.

The manager of the underwear department of a wholesale establishment selling in nearly one-half of the states, says he keeps the female members of his household outfitted with both rayon and cotton vests and bloomers, more for gratifying a curiosity than because interested in behalf of one or the other. He states cotton has the edge on rayon for economy and practicability but that rayon gets a unanimous vote when it comes to replenishing wardrobes. There are, however, a few manufacturers in upstate Pennsylvania and representatives for two southern mills who state women's cottons assuredly are losing no ground and seem to be gaining some. There were inquiries a few weeks ago for used machinery for a proposed small rayon underwear plant. The inquirer, a knitter intending to become employer instead of employee, did not know there already was excess production and a shot-to-pieces market. At any rate, he thought, he could make a small plant return at least as much as he could earn as a knitter. But at last accounts he had not located either the machinery or financial backing for the suggested plant.

Bathing Suits the Most Active Item in Knitted Goods?

PROBABLY the nearest approach to peak production in any distinct line of knitted wear has been attained in the bathing suit industry. For one reason, possibly, there are no surplus stocks with which buyers can play while striving for some advantage in price or terms. There is large potential production, but the season's big business appears to be going to those manufacturers whose models last year registered sensational sales, and the manufacturers who are not receiving their expected share of the orders seem not strong enough to make price competition effective.

Some few of the bathing suit plants in the East and in the Middle West are operating on overtime schedules, according to persons authorized to speak for representative concerns, and there were indications in February that day and night production would prevail in some of the mills which have sold their output to around the beginning of May and are receiving additional new business, besides a fair sprinkling of repeat orders.

Although the manufacturing campaign is well advanced, so far as relates to mills distributing through jobbers, new effects are being brought out. One of the latest innovations by a Philadelphia manufacturer in the busier class is a light weight garment, made from single worsted yarn, in suntan as a color background. The embellishment, to a considerable extent in blue, is in small designs. As comparatively little fabric remains for 1930 models, bathing suit patterns must of necessity be of small figures.

Stripper X
rthocen
Go the
rthocen
way
—to avoid the detours of uneven penetration, spotty dyeing, severe boil out, caustic trouble, excessive handling.
See our next advertisement for Road Map
American Aniline & Extract Company, Inc.
SINCE 1898
Venango and F Streets, Philadelphia
Sole Manufacturers of
rthocen
P. S. Ask your neighboring mill what they think of rthocen
Chemicals of Originality
Dyestuffs of Quality

KARL LIEBERKNECHT

Full Fashioned

HOSIERY MACHINES

Are Known for

Speed When Needed—
Quality Production Always

(The Machines Confirm It)

Manufactured by

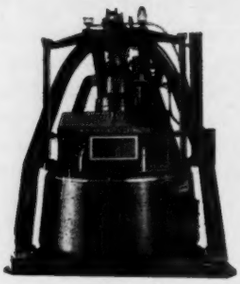
KARL LIEBERKNECHT, Oberlungwitz, Saxony

(In Any Desirable Gauge and Number of Sections)

Imported and sold exclusively by

LOUIS HIRSCH TEXTILE MACHINES, Inc.
47 W. 34th St., New York, N. Y.

Lieberknecht Hosiery Machines have been made by KARL LIEBERKNECHT, Oberlungwitz, Saxony, continuously since 1873

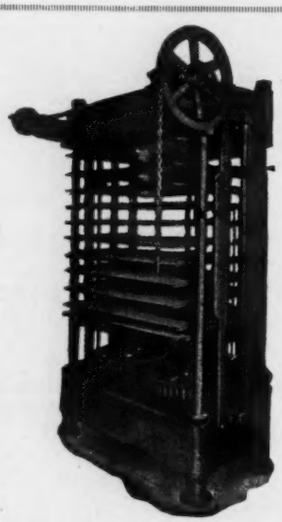


Only One Extractor is *all* Humatic!...

Only one Extractor has embodied in it *all* the advantages which the textile industry demands. The business-like "American" Humatic! Safety for the most delicate fibres —safety for the operator, too. Automatic timing, automatic braking, fool-proof signal system — a human-automatic machine that makes extracting profitable. Write.

The American Laundry Machinery Co.
Specialty Dept. C
Norwood Station, Cincinnati, Ohio

The Canadian Laundry Machinery Co., Ltd.
47-93 Sterling Road,
Toronto 3, Ontario, Canada



RELIANCE

Hot Plate Screw Press
FOR
Hosiery and Underwear

Write for Catalog and Prices

Reliance Machine Works
FRANKFORD, PHILA.

FELT

For all Mechanical Purposes

Slashers and Roller Cloth for Cotton Mills.
Felt wicks and washers for
FULL FASHION HOSIERY MILLS
Felt Sets for TEMCO Electric Heaters
Complete stock for immediate delivery

Samples and Prices Upon Request.

FIDELITY FELT COMPANY
Pike St. & Rising Sun Ave., Phila., Pa.

Liquid EBG Chlorine

The service is equal to the product.
In 100 and 150 pound Cylinders,
Ton Drums, and Tank Cars.

Electro Bleaching Gas Co.
PIONEER MANUFACTURERS of LIQUID CHLORINE
Plant: NIAGARA FALLS, N.Y.
Main office 9 East 41st Street New York

At the close of the beach bathing season this year there will be more sunburned backs than ever marked the finish of summer at the shore, for many of the backless suits are more nearly backless than last year, and that is reducing the amount of cloth to a limit prescribed by resort regulations. One manufacturer is reported having introduced in the wholesale trade a sort of skirted one-piece suit for men. Abbreviated to the ultra, there is provided what is described as an apron for the front. As it is tacked or seamed to the sides of the leg parts of the suit, the apron is expected to function properly in the roughest seas and keep the wearer within the pale of the law. There is heard the suggestion that American bathing suits are tending toward the vogue of the South Sea Islanders and the every-day apparel of the North American Indian when he was monarch of the plains. But the suits are selling for the seasons of 1930, and manufacturers are at probably the busiest period in some years.

As in bathing suits, manufacturers of high grade sweaters are using better worsted yarn than last year. As the yarns are costing them around 16 to 20 per cent less than a year ago, some of the far seeing mill men have put this difference into the sweaters instead of reducing prices, leaving that to a time when, perhaps, revisions might be more necessary than now appears for maintaining a fair stage of sales.

Knitting the popular and higher price sweaters of better yarn seems to have been prompted by the disposition of makers of low end coats to cheapen them. It was believed that by making quality more outstanding by comparison, the damage to the sweater industry by adulterating and manipulation would be in measure minimized. Particularly have shakers been reduced to a state of humiliation by the use of woolen yarns spun from waste and, some assert, sweepings.

It is related of a manufacturer in the smaller group that in 1928 when bidding for a contract for a few hundred shakers he bought a much inferior dyed yarn which was intended for only such mills as were known as producers of distinctly low end coats. After an early tryout of the coats, more than 80 per cent were returned to the mill and none ever was paid for. As the manufacturer had specified yarn contrary to the advice of the spinner, the latter refused to make an adjustment. This same mill now is making cotton-back sweaters and as they are of good construction in their class, the production has been sold well ahead and the plant is operating to capacity.

Some few of the shaker plants are idle, their owners refusing to cheapen the product. One uses a yarn of 95 per cent cotton and five per cent wool for a "part wool" sweater. This, it is stated by a producer of wool spun yarns, is superior to much of the dry-spun merino yarns and yarns which crock. "I have regard for a properly made cotton sweater, but none for one knitted of woolen yarns of the kind used by the mill which had to accept return of over 150 sweaters because the yarn is then crocked," said a spinner.

Many of the sweater mills have been in need of business. Orders were particularly hard to get in January and February. Reports from road salesmen who started about the middle of February for another

LAUNDER O METER
Standardized Machine for Laboratory Washing Tests

Anyone Can Now Make Accurate Color Fast To Washing Tests

This simple, efficient and dependable device will determine in two hours the effect of 20 washings in a commercial laundry so far as its color fastness to washing and its resistance to mechanical action is concerned. Launderometer was devised and perfected by American textile chemists, and is manufactured exclusively by us.

More Than 2200 Users

of Fadeometer testify to the accuracy and dependability of this improved device for accelerated fast to light tests of all kinds of materials. Ask for complete information regarding both of these remarkable machines.

ATLAS ELECTRIC DEVICES COMPANY
361 West Superior Street Chicago, Illinois, U. S. A.

Who else wants QUICKER box service

From our 5 SOUTHERN PLANTS

Right in the heart of the Southern textile district are five centrally located Old Dominion box plants, to give you quicker service, lower freight rates and quality boxes that stand second to none. We are the largest producers of paper boxes in our particular line in the United States and are in position to fill your requirements for boxes with special design wraps on short notice. Let us quote you on your next order, there is no obligation.

OLD DOMINION BOX COMPANY, INC.
Lynchburg, Va.

Winston-Salem, N. C. Burlington, N. C. Ashboro, N. C. Charlotte, N. C.

quality OLD DOMINION Paper Boxes

MERROW

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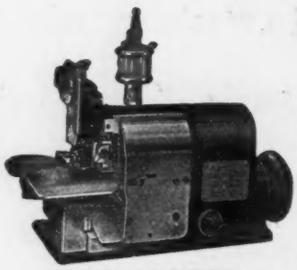
HIGH SPEED TRIMMING AND OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES FOR USE ON KNITTED AND WOVEN FABRICS OF ALL KINDS

——200 VARIETIES FOR 200 PURPOSES——



CLASS 60 MACHINE

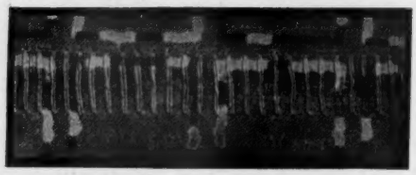
INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.



Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread **FLAT SEAMING** on Rayon Underwear.

Let Us Demonstrate the Work of These and Other Machines on Your Own Fabric.

THE MERROW MACHINE COMPANY

16 LAUREL STREET, HARTFORD, CONN.

ACME SALES CO.

S. L. DIGGLE
Manager

906 Johnston Bldg.
CHARLOTTE
No. Carolina

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REG. U.S. PAT. OFF.

DIXIE MERCERIZING CO. CHATTANOOGA TENN. LUSTRE

A thorough knowledge of knitters' and weavers' requirements enables us to give you valuable service in the selection of yarns that will afford best production results. Let us serve you on your next order.

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Automatic Adjustable **VITEK** Steel Stools

Before you let your seating contract, let us make a bid. Vitek offers many exclusive features . . . a patented locking device, which permits the seat to be raised to desired height by simply lifting it . . . all-steel construction, beautifully finished . . . 20 models to choose from . . . optional footrest and comfortable back . . . moderate prices. Vitek Seating Equipment is ideal for mills, factories, offices, drafting rooms. Catalog gives complete information.

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Reduce Your Seconds

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EXPANDING INSPECTING MACHINES

Learn To Hate Dyed Menders

FOR HOSIERY Edward R. Ammon, Reading, Pa.

Weimar Bros.

Phone Connections
Works: 2046-48 Amber Street
PHILADELPHIA, PA.

MANUFACTURERS OF
Cotton Mercerized Tapes, Spool Tapes, Bindings and Narrow Fabrics for Underwear and other Trades.

tour of the trade, were more encouraging than the state of business to that time. Sport coats of light weight worsted should be moving into distribution in fair volume very soon, and mills getting into their spring stride.

Among the Knitting Mills

ROBERT REINER, INC., has order for number of full-fashioned hosiery machines to be installed at the Foster Knitting Mills, Burlington, N. C.

The Greensboro (N. C.) Full-Fashioned Hosiery Mills, Inc., have decided to erect a two-story addition to their plant in order to treble the capacity. Their weekly output will be 10,000 dozen pairs of hose. Construction work was scheduled to start during the latter part of February. Their plans include the installation of 75 additional Reading full-fashioned machines of fine gauge.

Joyce Hosiery Mills, Inc., Winston-Salem, N. C., was recently incorporated by Guy R. Fulp, D. Coy Joyce and J. C. Cornels. This plant, which is to manufacture men's hose, was formerly known as Stonewall Mfg. Co.

Shoaf-Sink Hosiery Mills, Lexington, N. C., recently installed fifty 340-needle circular knit silk hosiery machines.

Morganton (N. C.) Full-Fashioned Hosiery Co. will continue its enlargement program throughout the year. It is estimated that by the end of the year the total cost will have been approximately $750,000, including building and equipment. Twenty-five full-fashioned machines have already been installed, while 25 more are to be installed.

It was recently reported that 100 knitting machines were being installed at the Shuford Mill Co. at Hickory, N. C.

Carpenter-Colquitt Hosiery Mill, Shelby, N. C., which will make cotton, silk and rayon recently began operations. O. E. Carpenter is head of the firm.

Alfred Hofmann, Inc., has contract for 60 full-fashioned hosiery machines for Cadet Hosiery Mills, Columbia, Tenn.

Liberty Hosiery Mills, Chattanooga, Tenn., which will manufacture half hose, will start operation with 17 knitting machines, 4 ribbers, 3 loopers and finishing equipment. Officers are S. H. Daniels, president; W. H. Daniels, secretary; and H. L. Jay, superintendent.

The knitting equipment being installed in the additions of the Arrowhead Fashion Mills and Davenport Hosiery Mills, Chattanooga, Tenn., consists of H. S. L. full fashioned hosiery machines purchased from Alfred Hofmann, Inc., of West New York, N. J.

The Cadet Knitting Co., Columbia, Tenn., an outgrowth of the Cadet Knitting Co., of Philadelphia, started operation in its new full fashioned mill during the latter part of January with ten machines. The company will manufacture fine and sheer silk chiffon full-fashioned hosiery up to 50-gauge. High speed, 24-section German machines are used. Additional machines will be installed in the near future, bringing the total up to 60 machines.

Surewear Hosiery Mills, Brookneal, Va., are making plans to rebuild the portion of plant destroyed by fire recently. The loss amounted to approximately $20,000.

It was recently announced that all equipment to be installed by the Elliott Knitting Mills, at Hickory, N. C., consists of H. S. L. (Theodor Lieberknecht) full fashioned hosiery machines.

Mock-Judson-Voehringer, Inc., Greensboro, N. C., manufacturers of full-fashioned hosiery, have opened their new salesrooms at 385 Fifth Ave., New York City.

Martinat Hosiery Mills, Valdese, N. C., are reported to be building a new office structure and excavation is being made for a two-story machine room and warehouse. Upon completion the floor space of the mill will be greatly increased and all the machinery housed under one roof.

Gardiner-Warring Co., Inc., Florence, Ala., is planning for expansion. A new warehouse will be erected, main plant will be enlarged and additional machinery installed to make a heavier grade of goods.

BONE-DRY UNSHRINKABLE WELL-FINISHED

HARD MAPLE HOSIERY BOARDS

Give you that much desired finish that cannot be obtained from any other than wooden boards.

You get the length, lustre, *feel* that the goods should have.

Our special finish is highly recommended for silk and wooden boards.

We serve the best mills—send a request for list and same will be forthcoming.

JOSEPH T. PEARSON & SON CO.
Manufacturers
Kensington and E. Boston Avenues
PHILADELPHIA, PENNA.

Does *matching* colors mean anything to you? It does to us!

EVERY sizable lot of yarn processed by The Yarns Corporation of America is done according to formula. We do this because we know there will be repeated requests to match colors.

To give this service to our customers and eliminate all guesswork we record every "lot" and its formula for future references and orders.

That is why, season after season all requests for matching colors are intelligently, correctly and promptly met.

We have matched the same colors numerous times. This service is available to all users of rayon yarns. Confer with The Yarns Corporation of America about your rayon yarn problems.

Rayon yarn on Cones, Cops, Tubes, Spools, Bobbins, Warps and Beams, Skeins: Direct, Sun-Fast, Tub-Fast and Indanthrene Dyes

Plants at

Brooklyn, N. Y.

Allentown, Pa.

Spartanburg S. C.

The YARNS CORPORATION *of* AMERICA
290 Fourth Avenue New York
Processors of Crown Brand Rayon Yarns

The YARN MARKET

Philadelphia, Pa., February 15, 1930.

CONDITIONS in the yarn market for the past month as reported here were just about as they have been for the past few months, very quiet. It will probably be remembered that quite a bit of optimism was prevalent among spinners and sellers during the latter part of the year. Most of them expected business to increase rather rapidly after the beginning of the New Year.

Last month's report revealed that the first week of the year started off with enough of a bang to justify the optimism that had existed. The spurt in sales, however, was short lived and sales during the next week, which was the last week reported in the last report, the week ending January 18th, declined to the volume that had existed for the past few weeks.

During the first week of the present report period, the week beginning January 20th, carded weaving yarn rates suffered a rather noticeable reduction. These reductions ranged from a half to a cent-and-a-half a pound. This decline in price caused ordinary quality carded yarns to reach the lowest level attained by these yarns since July, 1927. Included in the price cutting were very important numbers, such as 20s and 30s, two-ply carded warps. Many yarn distributors figured that spinners accepting business on such a low price basis as existed at that time were facing a loss of at least two cents a pound, or maybe more.

Yarn purchases showed improvement the following week, but still a large amount of expansion was necessary before a state of normality could be attained. Many yarn dealers were entertaining the fear that spinners, noticing the slight increase in demand, would again start up capacity production. It is understood that many yarn houses whose relations with certain spinners was unusually close sent urgent suggestions to the spinners as to the danger of resuming spindle activity too soon. Most yarn men agreed that the situation in cotton textiles justified more optimism at the present time than it had a month ago, but pointed to the fact that recovery thus far had been very gradual.

A rather steep decline in cotton quotations during the next week caused yarn prices to take another drop. This decrease in yarn prices caused buyers to lose a little of their conservatism in buying, but quite a few dealers were rather hesitant in taking orders at the prices then existing. During the latter part of the week, still lower prices than those carried in the published lists were reported as prevailing for occasional sales of ordinary quality carded yarns, including 31 cents for 20s 2 warps and 26 cents for 10s frame spun cones. Yarn houses were endeavoring to maintain quotations unchanged as compared with those ruling at the close of the preceeding week. Firmness on the part of spinners was expected to aid dealers in maintaining quotations to quite an extent.

An increase in number of inquiries received by dealers during the week of February 10th was taken as indicative of present need on the part of buyers. Many spinners failed to make any quotations on the inquiries sent them, stating that they absolutely would not take orders at prices that would prove ruinous to them. They demonstrated during the latter part of the week that they really intended carrying out the statements they had made a little earlier in the week. For example, a large majority of the yarn mills making ordinary quality 20s/2 carded yarns out of white cotton and selling their yarn through the regular market channels were asking 32 and 32½ cents a pound, whereas dealers were quoting a cent below this level and buyers claimed to be getting orders of small to moderate-sized lots from direct-sellers at 30 and 30½ cents a pound.

Philadelphia prices on February 14th follow:

Single Skeins.

8s	25½	10s	26½
12s	27	14s	27½
16s	28	20s	29½
24s	32	26s	33
30s	35		

Single Warps.

10s	27	12s	27½
14s	28	16s	28½
20s	30	26s	34
30s	35½		

Two-Ply Skeins.

8s	27	10s	27½
12s	28	14s	28½
16s	29	20s	30½ @31
24s	33 @33½	26s	34 @34½
30s	35 @35½	40s	42½

Two-Ply Warps.

10s	28	12s	28½
14s	29	16s	29½ @30
20s	31 @31½	24s	33½ @34
26s	34½ @35	30s	35½ @36
40s	43½		

Frame Spun Carded Yarn on Cones—Cotton Hosiery Yarn.

8s	26	10s	26 @26½
12s	27 @27½	14s	27½ @28
16s	28 @28½	18s	28½ @29
20s	29 @29½	22s	29½ @30
24s	32	26s	33
30s	35	40s	40½ @41
30s dbl. carded	37½	30s tying in	34

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	27
8s tinged tubes	24
8s 3-4 hard twist waste	23

Two-Ply Combed Peeler Skeins and Warps.

8 to 16s	43	20s	45@46
24s	46 @47	30s	49 @50
40s	51½ 53	50s	56¼ @58
60s	63½ @65	70s	73¼ @75
80s	85½ @88		

Single Combed Peeler Yarn on Cones.

18s	38	24s	41½
30s	46	36s	48
38s	49	40s	50
50s	54¼	60s	61½
70s	71½	80s	83½

Mule Spun Carded Yarn on Cones.

10s	32	12s	32½
14s	33	16s	33½
18s	34	20s	34½
24s	36½	26s	37
30s	38	40s	46

Mule Spun Combed Peeler Yarn on Cones.

10s	40	12s	41
14s	42	16s	43
18s	44	20s	46
22s	47	26s	48
28s	49	30s	50
36s	53	38s	55
40s	56		